API Well Number: 43027500030000

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 3
AMENDED REPORT ☑

APPLICATION FOR PERMIT TO DRILL

1. WELL NAME and NUMBER CW-6	
2. TYPE OF WORK DRILL NEW WELL ● REEnter P&A WELL ○ DEEPEN WELL ○	**3. FIELD OR WILDCAT** WILDCAT
4. TYPE OF WELL Gas Storage Well Coalbed Methane Well: NO	**5. UNIT or COMMUNITIZATION AGREEMENT NAME**
6. NAME OF OPERATOR MAGNUM SOLUTION MINING, LLC	**7. OPERATOR PHONE** 801 993-7001
8. ADDRESS OF OPERATOR 3165 E Millrock Dr, Holladay, UT, 84124	**9. OPERATOR E-MAIL** ddetton@westernenergyhub.com
10. MINERAL LEASE NUMBER (FEDERAL, INDIAN, OR STATE) 51573-OBA **11. MINERAL OWNERSHIP** FEDERAL ○ INDIAN ○ STATE ● FEE ○	**12. SURFACE OWNERSHIP** FEDERAL ○ INDIAN ○ STATE ● FEE ○
13. NAME OF SURFACE OWNER (if box 12 = 'fee')	**14. SURFACE OWNER PHONE (if box 12 = 'fee')**
15. ADDRESS OF SURFACE OWNER (if box 12 = 'fee')	**16. SURFACE OWNER E-MAIL (if box 12 = 'fee')**
17. INDIAN ALLOTTEE OR TRIBE NAME (if box 12 = 'INDIAN') **18. INTEND TO COMMINGLE PRODUCTION FROM MULTIPLE FORMATIONS** YES ○ (Submit Commingling Application) NO ●	**19. SLANT** VERTICAL ● DIRECTIONAL ○ HORIZONTAL ○

20. LOCATION OF WELL	FOOTAGES	QTR-QTR	SECTION	TOWNSHIP	RANGE	MERIDIAN
LOCATION AT SURFACE	442 FNL 284 FWL	NWNW	26	15.0 S	7.0 W	S
Top of Uppermost Producing Zone	442 FNL 284 FWL	NWNW	26	15.0 S	7.0 W	S
At Total Depth	442 FNL 284 FWL	NWNW	26	15.0 S	7.0 W	S

21. COUNTY MILLARD	**22. DISTANCE TO NEAREST LEASE LINE (Feet)** 284	**23. NUMBER OF ACRES IN DRILLING UNIT** 2
	25. DISTANCE TO NEAREST WELL IN SAME POOL (Applied For Drilling or Completed) 522	**26. PROPOSED DEPTH** MD: 5050 TVD: 5050
27. ELEVATION - GROUND LEVEL 4612	**28. BOND NUMBER** B008000	**29. SOURCE OF DRILLING WATER / WATER RIGHTS APPROVAL NUMBER IF APPLICABLE** 68-396

Hole, Casing, and Cement Information

String	Hole Size	Casing Size	Length	Weight	Grade & Thread	Max Mud Wt.	Cement	Sacks	Yield	Weight
COND	36	36	0 - 150	282.4	B Casing	0.0	No Used	0	0.0	0.0
SURF	34	30	0 - 750	234.3	X-52 Casing	9.5	Class A	887	1.18	15.6
I1	28	24	0 - 2500	245.6	X-52 Casing	10.2	Class A	2404	1.18	15.6
I2	24	20	0 - 1500	133.0	N-80 Buttress	10.2	Class G	1161	1.24	16.3
			1500 - 3600	191.0	X-56 Casing	10.2	Class G	1626	1.24	16.3
Prod	22	16	0 - 2000	95.0	N-80 Buttress	10.4	Class G	2006	1.24	16.3
			2000 - 3700	118.0	N-80 Buttress	10.4	Class G	1705	1.24	16.3

ATTACHMENTS

VERIFY THE FOLLOWING ARE ATTACHED IN ACCORDANCE WITH THE UTAH OIL AND GAS CONSERVATION GENERAL RULES

☑ WELL PLAT OR MAP PREPARED BY LICENSED SURVEYOR OR ENGINEER	☑ COMPLETE DRILLING PLAN
☑ AFFIDAVIT OF STATUS OF SURFACE OWNER AGREEMENT (IF FEE SURFACE)	☐ FORM 5. IF OPERATOR IS OTHER THAN THE LEASE OWNER
☐ DIRECTIONAL SURVEY PLAN (IF DIRECTIONALLY OR HORIZONTALLY DRILLED)	☑ TOPOGRAPHICAL MAP

NAME Tiffany A. James	**TITLE** Director of GR and Env Svcs	**PHONE** 801 993-7001
SIGNATURE	**DATE** 11/04/2011	**EMAIL** tjames@westernenergyhub.com

API NUMBER ASSIGNED
43027500030000

APPROVAL

Permit Manager

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API Well Number: 43027500030000

Application for Permit to Drill Magnum Cavern Well 6

Drilling Plan

MAGNUM
Enabling Renewables

API Well Number: 43027500030000

Application for Permit to Drill
Magnum Cavern Well 6

Drilling Plan

11/04/2011
(revised 2/22/2012)

Prepared by:

Magnum
3165 E. Millrock Dr., Suite 330
Holladay, Utah 84121
Tel 801 993 7001 Fax 801 993 7025
www.westernenergyhub.com

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Section 1

Drilling / Well Construction Plan

1.1 Plan Summary

This Application for Permit to Drill has incorporated all of the sections in the DOGM APD Checklist. Additional requirements for the drilling program are listed on the Instructions page of the Application. The discussion below is intended to respond directly to the drilling program additional requirements.

1. The estimated tops of important geologic markers:

Important geologic markers are shown in **Exhibit A: Wellhead Casing Design**. General geologic markers include clay-confining layers that generally delineate the shallow unconfined aquifer, the shallow artesian aquifer, the deep artesian aquifer, and the basement artesian aquifer. The main marker identified on site is the transition between the alluvial aquifers and the salt structure which begins at approximately 3,400 feet.

2. The estimated depths at which the top and the bottom of anticipated water, oil, gas, or other mineral-bearing formations are expected to be encountered, and the owners or operator's plans for protecting such resources:

The shallow water table has been found on site to be at an approximate depth of 60 feet. Water continues to be encountered until entering the salt structure, which in and of itself is unsaturated. Significant decreases in water quality occur within the salt transition zone starting at about 3,000 feet.

Protection of the ground water resource will be ensured through the casing and cementing program proposed to be implemented as provided on **Exhibit A: Wellhead Casing Design**, the Casing Design report, and the Well Drilling/Construction Plan.

No oil or gas has been found on site, nor is it expected.

3. The owner's or operator's minimum specifications for pressure control equipment to be used and a schematic diagram thereof showing sizes, pressure ratings or API series, proposed testing procedures and testing frequency:

See the **Exhibit A: Wellhead Casing Design,** the "16-Inch Drilling/Well Construction Plan" and the "Conceptual 16-Inch Well Casing Program" for the descriptions of the drilling equipment and casing program.

4. Any supplementary information more completely describing the drilling equipment and casing program as shown on this form:

See the "16-Inch Drilling/Well Construction Plan" and the "Conceptual 16-Inch Well Casing Program" for the descriptions of the drilling equipment and casing program.

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5. The type and characteristics of the proposed circulating medium or mediums to be employed in drilling, the quantities and types of mud and weighting material to be maintained, and the monitoring equipment to be used on the mud system:

The Fluids Program will be completed by the drilling contractor's mud engineer prior to well drilling. The Reserve Pit will be lined with a 20-mil HDPE liner. See **Exhibit B: Well Pad** and **Exhibit C: Well Pad Cross Sections** for details of the Reserve Pit.

6. The anticipated type and amount of testing, logging, and coring:

See the "16-Inch Drilling/Well Construction Plan."

7. The expected bottom hole pressure and any anticipated abnormal pressures or temperatures or potential hazards, such as hydrogen sulfide, expected to be encountered, along with contingency plans for mitigating such identified hazards:

See the "Operating Plan and Procedures" for the operating pressures. No abnormal pressures, temperatures, or potential hazards were encountered in the drilling of exploratory well MH-1, nor are they anticipated on future wells.

8. Any other facets of the proposed operation which the lessee or operator desires to point out for the division's consideration of the application:

None.

1.2 16-Inch Drilling/Well Construction Plan

The following is the general program to be used to drill the Magnum Cavern Well 6. Depths shown are approximate, **from ground level**.

1. Rig up drilling rig.
2. Drive 36-inch O.D., 1.0-inch wall thickness, API 5L Grade B conductor casing to approximately 150 feet or refusal.
3. Drill a 17-1/2-inch hole to ±780 feet and log.
4. Open 17-1/2-inch hole up to 34-inch with hole openers of increasing size.
5. Run and cement 750 feet of 30-inch O.D., 0.750-inch wall thickness, API 5L X-52 pipe. Centralizers to be placed every other casing section.
6. Allow the cement to set a minimum of 18 hours. Pressure test the casing in accordance with state rules.
7. After the cement sets, cut off the 30-inch casing and weld on a 30-inch x 20-inch reducer and 21-1/4-inch flange. Nipple up a 20-inch annular BOPE.
8. Drill a 17-1/2-inch hole to slightly above top of salt structure estimated to be ± 2,550 feet. Lost circulation may occur over this interval; control as necessary by the use of lost circulation material, cement plugs or drill without returns.

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9. Run gamma ray, SP induction and resistivity logs as specified.
10. Open the 17-1/2-inch hole to 28-inch with hole openers of increasing size.
11. Run X-Y caliper log.
12. Run and cement ± 2,500 feet of 24-inch O.D., 1-inch wall thickness, API X-52 T&C casing. Use the stab-in cementing method. Centralizers to be placed every other casing section.
13. After the cement sets, pressure test the casing in accordance with State rules.
14. Cut off the 24-inch casing and weld on a 24-inch x 20-inch reducer and 21-1/4-inch flange. Nipple up a 20-inch annular BOPE.
15. Switch to salt saturated mud after 24-inch casing is set and when drilling encounters the top of the salt structure.
16. Drill a 17-1/2-inch hole to ± 3,650 feet.
17. Run gamma ray, SP induction, neutron and bulk density logs as specified.
18. Open the 17-1/2-inch hole to 24-inch with hole openers and under-reamers of increasing size.
19. Run X-Y caliper log.
20. Run and cement 1,500 feet of 20-inch O.D., 0.635-inch wall thickness, API N-80 BT&C and 2,100 feet of 20-inch O.D. and 0.938-inch wall thickness, X-56 threaded and coupled line pipe. Use the stab-in cementing method. Centralizers to be placed every other casing section.
21. Allow the cement to set a minimum of 72 hours. Pressure test the casing in accordance with State rules.
22. Cut off the 20-inch casing and weld on a 21-1/4-inch flange. Nipple up a 20-inch annular BOPE.
23. Drill a 17-1/2-inch hole to ±3,750 feet.
24. Run gamma ray, SP induction, neutron and bulk density logs as specified.
25. Open the 17-1/2-inch hole up to 22-inch using hole openers and under-reamers.
26. Run X-Y caliper log.
27. Run and cement 2,000 feet of 16-inch O.D., 0.566-inch and 1,700 feet of 0.715-inch wall thickness, N-80 BT&C API casing. Use the stab-in cementing method. Centralizers to be placed every other casing section.
28. Allow the cement to set a minimum of 72 hours. Pressure test the casing in accordance with state rules.
29. Drill out plug and ten feet of salt formation.
30. Pressure test casing shoe in accordance with the state rules and regulations.
31. Drill a 12-1/4-inch hole to ±5,050 feet.

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32. Log cuttings and check for loss of drilling fluid indicating a porous formation is encountered. If so, perform a tightness test over this interval.
33. Run gamma ray, neutron and bulk density logs as specified.
34. If logs indicate a porous zone in the salt section, perform tightness test over the zone.
35. Under ream the 12-1/4-inch hole to 17-1/2-inch down to a depth of 4,500 feet.
36. Run X-Y caliper log.
37. Run casing inspection and cement bond logs in 16-inch casing from shoe to surface.
38. Run in approx. 4,500 feet of 13-3/8-inch, 72 lb/ft N-80, BT&C casing.
39. Install and test the upper wellhead assembly (see **Exhibit D: Injection Wellhead Design**).
40. Run in approx. 4,950 feet of 8-5/8-inch, 36 lb/ft, K-55, BT&C casing.
41. Install remainder of wellhead (see **Exhibit D: Injection Wellhead Design**).
42. Rig down and move out rig from location.
43. Clean up location.

1.3 Welding Protocol

1. Lift ring welding and inspection to be performed in accordance with AWS (American Welding Society) D1.1 Structural Welding Code. Perform nondestructive testing (NDT) on the welds using ultrasonic shear wave equipment as specified in AWS D1.1 and interpreted by a NDT Level II or III Certified Technician who is qualified under ASNT CP-189, Standard for Qualification and Certification for Nondestructive Testing Personnel, 2006 Edition and CP-105, ASNT Standard Topical Outlines for Qualification of Nondestructive Testing Personnel, 2006 Edition.

2. Casing double joint welding shall be performed in accordance with API Standard 1104 Welding of Pipelines and Related Facilities. The pipe base material's carbon equivalency will be computed from the material composition as written in the Material Test Report (MTR) that is provided when the pipe is purchased. The welding contractor will provide a Welding Procedure Specification (WPS) that matches the base material and Procedure Qualification Report (PQR) and welders who are qualified to the WPS with Welders Qualification Report (WQR). The welding contractor will provide the WQR for each potential welder prior to beginning production welding. The field supervisor will verify that the WQR and welder's photo identification match.

   Non-destructive testing (NDT) will be performed on the butt welds using radiography as specified in API Standard 1104 and interpreted by a NDT Level II or III Certified Technician who is qualified under ASNT CP-189, Standard for Qualification and Certification for Nondestructive Testing Personnel, 2006 Edition and CP-105, ASNT Standard Topical Outlines for Qualification of Nondestructive Testing Personnel, 2006 Edition. Each completed girth, butt weld shall be radiograph tested to API Standard 1104 qualifications. The radiograph methods and qualifications shall comply with API

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Standard 1104 "Certification of Nondestructive Testing Personnel" and "Acceptance Methods for Nondestructive Testing Personnel".

3. Casing rig welding shall be performed in accordance with API Standard 1104 Welding of Pipelines and Related Facilities. The pipe base material's carbon equivalency will be computed from the material composition as written in the Material Test Report (MTR) that is provided when the pipe is purchased. The welding contractor will provide a Welding Procedure Specification (WPS) that matches the base material and Procedure Qualification Report (PQR) and welders who are qualified to the WPS with Welders Qualification Report (WQR). The welding contractor will provide the WQR for each potential welder prior to beginning production welding. The field supervisor will verify that the WQR and welder's photo identification match.

   Non-destructive testing (NDT) will be performed on the butt welds using radiography as specified in API Standard 1104 and interpreted by a NDT Level II or III Certified Technician who is qualified under ASNT CP-189, Standard for Qualification and Certification for Nondestructive Testing Personnel, 2006 Edition and CP-105, ASNT Standard Topical Outlines for Qualification of Nondestructive Testing Personnel, 2006 Edition. Each completed girth, butt weld shall be nondestructively tested to API Standard 1104 qualifications. The test methods and qualifications shall comply with API Standard 1104 "Certification of Nondestructive Testing Personnel" and "Acceptance Methods for Nondestructive Testing Personnel".

1.4 Specifications for Cementing Services and Materials

This specification covers the requirements to supply cement, equipment and services for storage wells located near Delta, Utah. The work will be conducted from a land rig. Cement bond logs cannot be used with reliability on the 20-inch plus well casings proposed for the gas storage products wells and therefore will not be run on the larger casings. A review of cement bonding capabilities with PB Energy Storage Services, Inc. has confirmed that there are no test methods currently available to conduct a bond log. Therefore, cementing operations will be visually verified at the time of cementing via the observance of cement rising within the outer well annulus to the surface (see **Table 1-1)**.

Proposed wellbore configuration (Depths RKB):

- 36-inch Conductor Pipe: 0 - Approx. 150 feet (Driven to refusal);
- 30-inch Surface Casing: 0 - Approx. 750 feet (Approx. 34-inch Open Hole);
- 24-inch Intermediate Casing: 0 –2,500 feet (Approx. 28-inch Open Hole);
- 20-inch Next to Last Casing: 0 – 3,600 feet (Approx. 24-inch Open Hole);
- 16-inch Last Cemented Casing: 0 – 3,700 feet (Approx. 22-inch Open Hole); and
- Top of Salt: Approx. 3,400 feet.

1. Cement specifications for the 30-inch surface casing. Cement job will be pumped through a stabbed-in 5-inch DP.

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a. Cement to surface: Class A (Standard) + Defoamer (if deemed necessary)
b. Water Ratio 5.2 gals/sack
c. Slurry Weight 15.6 lbs/gal
d. Slurry Volume 1.18 cu. ft./sack
e. Excess 50% Open Hole Volume (4 Arm Caliper Available)

2. Cement specifications for the 24-inch intermediate casing. Cement job will be pumped through a stabbed-in 5-inch DP.
   a. Cement to surface: Class A (Standard) + Defoamer (if deemed necessary).
   b. Water Ratio 5.2 gals/sack
   c. Slurry Weight 15.6 lbs/gal
   d. Slurry Volume 1.18 cu. ft./sack
   e. Excess 50% Open Hole Volume (4 Arm Caliper Available)

3. Cement specifications for the 20-inch next to last casing. Cement job will be pumped through a stabbed-in 5-inch DP.
   a. Cement to surface: Class G (Premium) + 37.2% Salt + Defoamer (if deemed necessary).
   b. Water Ratio 5.0 gals/sack
   c. Slurry Weight 16.3 lbs/gal
   d. Slurry Volume 1.24 cu. ft./sack
   e. Excess 30% Open Hole Volume (4 Arm Caliper Available)

4. Cement specifications for the 16-inch last casing. Cement job will be pumped through a stabbed-in 5-inch DP.
   a. Cement to surface: Class G (Premium) + 37.2% Salt + Defoamer (if deemed necessary).
   b. Water Ratio 5.0 gals/sack
   c. Slurry Weight 16.3 lbs/gal
   d. Slurry Volume 1.24 cu. ft./sack
   e. Excess 30% Open Hole Volume (4 Arm Caliper Available)

1.5 Well Conditioning

Before commencing drilling operations (spudding the well), Magnum will provide detailed procedures for conditioning the hole prior to cementing casing. The pre-flush procedure will ensure that the wellbore is properly conditioned for cementing operations in accordance with recommendations from the cementing contractor.

The well is conditioned to circulate the drilling fluids, sweep cuttings out of the hole, obtain consistent fluid properties, and adjust the fluid viscosity and density in an attempt to prevent

cement channeling through the fluid. Detailed procedures for this process will be the task of the drilling contractor.

1.6 Reporting

During drilling the casing cement jobs shall be documented by an affidavit from the cementing company showing the amount and type of cementing materials and the method of placement.

Three samples of the cement slurry for each of the intermediate and salt casings shall be collected in suitable sized and shaped containers so that the hardened cement can be tested for compressive strength.

Table 1-1: 16-Inch Injection Well Proposed Casing and Cementing Program

Hole Size	Driven	34-inch	28-inch	24-inch	24-inch	22-inch	22-inch
Casing Size	**36-inch**	**30-inch**	**24-inch**	**20-inch**	**20-inch**	**16-inch**	**16-inch**
Mud Weight Type	N/A	9.5 ppg Fresh Water	10.2 ppg Fresh Water	10.2 ppg Saturated Brine	10.2 ppg Saturated Brine	10.4 ppg Saturated Brine	10.4 ppg Saturated Brine
Slurry Weight	N/A	15.6 ppg Fresh Water	15.6 ppg Fresh Water	16.3 ppg Saturated Brine	16.3 ppg Saturated Brine	16.3 ppg Saturated Brine	16.3 ppg Saturated Brine
Cement Type	N/A	Class A Standard	Class A Standard	Class G Premium	Class G Premium	Class G Premium	Class G Premium
Cement Yield	N/A	887 sks	2,404 sks	1,161 sks	1,626 sks	2,006 sks	1,705 sks
Cement Volume	N/A	1.18cu ft/sk	1.18 cu ft/sk	1.24 cu ft/sk	1.24 cu ft/sk	1.24 cu ft/sk	1.24 cu ft/sk

Section 2

Conceptual 16-Inch Injection Well Casing Program

2.1 General Well Design

The 16-inch injection well for the Magnum salt storage caverns will be drilled from surface to more than a thousand feet into the salt. The wells will have a water protection string or surface casing and two casing strings (intermediate and production casings) cemented into the upper section of the salt. The casing string will be run in a wellbore of slightly larger diameter than the casing and cemented into place. The drilling and cementing programs are presented in Section 3.

The surface casing is sized to allow for a second contingent intermediate string in the event that a problem zone is encountered during drilling that requires a casing string to seal it off. The well in general is sized to allow product injection into and production from the completed cavern at 2,500 gpm with a velocity of less than 16 feet per second. The casing sizes also allow use of tubing strings for mining that will maintain fluid velocities at about 16 feet per second. This is an acceptable range for mining operations.

The various casing strings are sized to withstand foreseeable collapse, burst and tensile forces that might act upon the casing. The goal of the design was to specify casing sizes and grades that allow a safety factor of about 1.0 for collapse, 1.0 for burst and 1.6 for tensile forces based on published strength data.

In normal operations, collapse forces generally are greatest during cementing of the casing string when the inside of the casing is filled with drilling mud and the annulus is filled with heavier cement slurry. In normal operations, the collapse forces resulting from the weight difference between cement and drilling mud are low. At 4,000 feet this can amount to about 1,000 psi. However, in keeping with generally accepted practices (such as ERCB Directive 10) the collapse pressures are calculated with the assumption that the annulus is filled with cement and the inside of the casing is air-filled.

In the case of the outer mining tubing string, the collapse pressures result from the use of nitrogen as a blanket material. The nitrogen roof blanket pressures will be greatest at the start of mining when the nitrogen roof blanket is at its deepest location. At the worst case (for collapse calculations) the largest pressures occur during reverse mining when the cavern is shut-in. In this instance, water is in the outer tubing string, and the brine in the cavern is unsaturated and continues to dissolve salt. The continued dissolution increases space in the cavern so that the wellhead fluid pressures fall to a vacuum. If at the same time the borehole has closed around the hanging tubing, the nitrogen pressure will be locked in at its normal operating pressure. The full nitrogen pressure of about 2,000 psi will be acting against the 13-3/8-inch tubing with a vacuum on the inside. The tubing has been sized to withstand this type of worst-case event to mitigate the low potential for occurrence.

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Burst forces again are generally greatest during cementing operations but are normally very low during normal operations. The worst case occurs if the casing has been run in the well, the float shoe/collar gets stuck shut and a gas blowout occurs at the bottom of the hole. In this event the full hydrostatic pressure of the drilling mud in the casing would be acting against a low-pressure gas-filled annulus. The pressure of the annulus was conservatively assumed to be "0" psi.

In the case of the final cemented casing, significant burst forces occur during mining operations due to the use of nitrogen as the blanket material. After mining is completed, lesser pressures will act inside the final cemented casing as a result of normal liquid storage operations.

The casing program designed for the Magnum Cavern Well 6 is summarized in **Table 2-1**. In the event that these casing and pipe sizes are not available, the next higher grade or increased wall thickness should be chosen. Calculations for forces acting on the various strings are shown in Appendix A. The safety factors for the various loading scenarios are summarized in **Table 2-2**.

Table 2-1: Summary of Casings for Magnum Cavern Well 6

Casing String	Size – inches	Weight – pounds/foot	Grade	Depth – feet
Conductor	36	282.35	B	0 – 150
Surface	30	234.29	X-52	0 – 750
Intermediate	24	245.64	X-52	0 – 2,500
First Salt	20	133	N-80	0 – 1,500
First Salt Final cemented depth 3,600 feet	20	190.96	X-56	1,500 – 3,600
Production (2nd Salt)	16	95	N-80	0 – 2,000
Production (2nd Salt) Final cemented depth 3,700 feet	16	118	N-80	2,000 – 3,700
Outer Mining String	13-3/8	72	N-80	0 – 4,500
Inner Mining String	8-5/8	36	K-55	0 – 4,950

Table 2-2: Summary of Calculated Factors of Safety

Casing String	Safety Factor		
	Collapse – 1.0	Burst – 1.0	Tensile – 1.6
36-inch Conductor	N/A	N/A	N/A
30-inch Surface	1.48	5.67	15.54
24-inch Intermediate	1.10	2.26	N/A
20-inch First Salt String	1.26	5.59	N/A
20-inch First Salt String	1.01	1.83	2.81
16-inch Production (2nd Salt String)	1.29	4.58	N/A
16-inch Production (2nd Salt String)	1.17	3.13	3.39
13-3/8-inch Outer Mining String	1.33	1.67	5.23
8-5/8-inch Inner Mining String	N/A	N/A	3.87

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2.2 Casing Design Calculations

2.2.1 Conductor Pipe

36-inch, 282.35 lb/ft, wall thickness 1-inch, B Grade, plain end, welded pipe from 0 feet to approximately 150 feet. Pipe is to be driven by pile driver to refusal.

2.2.2 Surface Casing

30-inch, 234.29 lb/ft, wall thickness 0.75-inch, X-52 Grade, welded pipe from 0 feet to 750 feet.

2.2.2.1 Collapse Calculations

Assume that the bottom-hole depth of the 30-inch surface casing is at ±750 feet from surface, with a welded float shoe located at the bottom of the casing string. The worst-case scenario for collapse pressure would be a full column of cement in the casing/hole annulus, and a column of gas inside the 30-inch surface casing.

- (750 feet) (0.052 psi/ft) (15.6 lb/gal cement) = 608 psi hydrostatic pressure exerted on the exterior of the 30-inch casing, at 750 feet.
- 0 psi hydrostatic pressure exerted on the interior of the 30-inch casing, at 750 feet.
- Differential pressure, (collapse pressure) annulus pressure verses pressure inside the 30-inch casing equals: 608 psi – 0 psi = 608 psi.

The 30-inch surface casing has a collapse rating of 898 psi. According to the above differential calculations, the proposed 30-inch surface casing to be used has a collapse rating greater than any outside pressure that will be exerted against the exterior of the casing.

2.2.2.2 Burst Calculations

Assume that the bottom hole depth of the 30-inch surface casing is at ±750 feet from surface, with a welded float shoe located at the bottom of the casing string. The 30-inch surface casing will be loaded with 9.5 lb per gallon drilling mud. The worst case for burst is if the float shoe becomes stuck closed and a gas blowout occurs at the shoe. In this case there would be a column of gas outside of the casing and a full column of drilling mud inside the casing.

- (750 feet) (0.052 psi/ft/lb/gal) (9.5 lb/gal drilling mud) = 371 psi hydrostatic pressure exerted on the interior of the 30-inch casing, at 750 feet.
- Differential pressure, (burst pressure) inside pressure verses annulus pressure on the outside of the 30-inch casing equals 371 psi – 0 psi = 371 psi.

According to API Bulletin 5L, the 30-inch surface casing has a minimum test pressure of 2,100 psi. According to the above differential calculations, the proposed 30-inch surface casing to be used has a minimum test pressure greater than any inside pressure that will be exerted against the interior of the casing.

2.2.2.3 Tensile Calculations

The proposed 30-inch surface casing weighs 234.29 lb/ft and will be set at approximately 750 feet, for a total string weight of 175,718 lbs. The 30-inch, welded surface casing proposed

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has a tensile rating of 2,733,000 lbs, which is greater than tensile weight exerted by the weight of the casing.

2.2.3 Intermediate String Casing

24-inch, 245.64 lb/ft, wall thickness 1.0-inch, X-52 Grade, plain end fitted with threaded connections from 0 feet to 2,500 feet.

2.2.3.1 Collapse Calculations

Assume that the bottom hole depth of the 24-inch 245.64 lb/ft casing (pipe) at ±2,500 feet from surface, with a welded float shoe located at the bottom of the casing string. The worst-case scenario for collapse pressure would be a full column of cement in the casing/hole annulus, and an empty column inside the 24-inch surface casing.

- (2,500 feet) (0.052 psi/ft/lb/gal) (15.6 lb/gal cement) = 2,028 psi hydrostatic pressure exerted on the exterior of the 24-inch casing, at 2,500 feet.
- Differential pressure, (collapse pressure) annulus pressure verses pressure inside the 24-inch casing at 2,500 feet equals: 2,028 psi – 0 psi = 2,028 psi.

According to API Bulletin 5L, the 24-inch outer string casing at 2,500 feet has a collapse rating of 2,230 psi and at 3,400 feet a collapse rating of 3,130 psi. According to the above differential calculations, the proposed 24-inch outer string casing to be used has a collapse rating equal to or greater than any outside pressure that will be exerted against the exterior of the casing.

2.2.3.2 Burst Calculations

Assume that the bottom-hole depth of the 24-inch surface casing is at ±2,500 feet from surface, with a welded float shoe located at the bottom of the casing string. The 24-inch surface casing will be loaded with 10.2 lb per gallon drilling mud. The actual cement process will be down drill pipe, which will be stung into the float shoe at 2,500 feet so that the casing is not filled with cement. The worst case for burst is if the float shoe becomes stuck closed and a gas blowout occurs at the shoe. In this case there would be a column of gas outside the outside of the casing and a full column of drilling mud inside the casing.

- (2,500 feet) (0.052 psi/ft/lb/gal) (10.2 lb/gal drilling mud) = 1,326 psi hydrostatic pressure exerted on the interior of the 24-inch casing, at 2,500 feet.
- Differential pressure, (burst pressure) inside pressure verses annulus pressure on the outside of the 24-inch casing at 2,500 feet equals: 1,326 psi – 0 psi = 1,326 psi.

According to API Bulletin 5L, the 1-inch 24-inch outer string casing has a minimum test pressure of 3,000 psi above 2,500 feet. According to the above differential calculations, the proposed 24-inch surface casing to be used has a minimum test pressure greater than any inside pressure that will be exerted against the interior of the casing.

2.2.3.3 Tensile Calculations

The proposed 24-inch outer string casing weighs 245.64 lb/ft at 2,500 for a total string weight of 614,100 lbs. The proposed 24-inch, threaded intermediate casing has a tensile rating of 3,757,000 lbs, which is greater than the tensile weight exerted by the weight of the casing.

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2.2.4 First Salt String Casing

20-inch, 133 lb/ft, wall thickness 0.635-inch, N-80 Grade, buttress connection, casing from 0 to 1,500 feet. 20-inch, 190.96 lb/ft, wall thickness 0.938-inch, X-56 Grade, threaded pipe, from 1,500 to 3,600 feet.

2.2.4.1 Collapse Calculations

Assume that the bottom-hole depth of the 20-inch first salt string of casing is at ±3,600 feet from surface, with a welded float shoe located at the bottom of the casing string. The casing string will be made up of two weights of casing.

Above 1,500 feet the casing will be 133 lb/ft, N-80 casing. From 1,500 feet to 3,600 feet the casing will be 190.96 lb/ft X-56 line pipe. This string will have buttress connections above 1,500 feet and proprietary connections on the line pipe. The worst-case scenario for collapse pressure would be a full column of cement in the casing/hole annulus, and an empty inside the 20-inch surface casing.

- (1,500 feet) (0.052 psi/ft/lb/gal) (16.3 lb/gal cement) = 1,271 psi hydrostatic pressure exerted on the exterior of the 20-inch casing, at 1,500 feet.
- (3,600 feet) (0.052 psi/ft/lb/gal) (16.3 lb/gal cement) = 3,051 psi hydrostatic pressure exerted on the exterior of the 20-inch casing, at 3,600 feet.
- At 1,500 feet, the differential pressure equals: 1,271 psi – 0 psi = 1,271 psi. According to Lone Star Steel, the 20-inch 133-lb/ft casing has a collapse rating of 1,600 psi. According to the above differential calculations, the proposed 20-inch first salt string casing to be used has a collapse rating greater than any outside pressure that will be exerted against the exterior of the casing.
- At 3,600 feet, the differential pressure equals: 3,051 psi – 0 psi = 3,051 psi. The 20-inch 190.96 lb/ft pipe has a collapse rating of 3,080 psi. According to the above differential calculations, the proposed 20-inch first salt string casing to be used has a collapse rating greater than any outside pressure that will be exerted against the exterior of the casing.

2.2.4.2 Burst Calculations

Assume that the bottom-hole depth of the 20-inch surface casing is at ±3,600 feet from surface, with a welded float shoe located at the bottom of the casing string. The 20-inch surface casing will be loaded with 10.2 lb per gallon drilling mud. The actual cement process will be down drill pipe, which will be stung into the float shoe at 3,600 feet so the casing will not be filled with cement. The worst case for burst considerations would be if there was a gas blowout in the salt after the casing was set but before it was cemented. This could potentially leave a column of gas along the outside of the casing and a full column of drilling mud inside the casing.

- (1,500 feet) (0.052 psi/ft/lb/gal) (10.2 lb/gal drilling mud) = 796 psi hydrostatic pressure exerted on the interior of the 20-inch casing, at 1500 feet.
- (3,600 feet) (0.052 psi/ft/lb/gal) (10.2 lb/gal drilling mud) = 1,909 psi hydrostatic pressure exerted on the interior of the 20-inch casing, at 3,600 feet.
- Differential pressure (burst pressure), inside pressure verses annulus pressure on the outside of the 20-inch casing equals: 796 psi – 0 psi = 796 psi.

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- Differential pressure (burst pressure), inside pressure verses annulus pressure on the outside of the 20-inch casing equals: 1,909 psi – 0 psi = 1,909 psi.

The 20-inch pipe has a minimum test pressure of 4,450 psi above 1,500 feet and 3,500 psi for the lower segment. According to the above differential calculations, the proposed 20-inch casing to be used has a minimum test pressure greater than any inside pressure that will be exerted against the interior of the casing.

2.2.4.3 Tensile Calculations

The 20-inch surface casing proposed weighs 133 lb/ft set at 1,500 feet and 190.96 lb/ft set at approximately 3,600 feet, for a total string weight of 600,516 lbs. API TR5C3 provides a tensile strength for the N-80 buttress end casing at the top of the string of 1,685,000 pounds; which exceeds the above-calculated weight of the 20-inch casing.

2.2.5 Production String Casing

16-inch, 95 lb/ft, N-80 Grade, wall thickness 0.566-inch, buttress connection, casing from 0 to 2,000 feet. 16-Inch, 118 lb/ft, N-80, wall thickness 0.715-inch, buttress connection, casing from 2,000 to 3,700 feet.

2.2.5.1 Collapse Calculations

Assume that the bottom-hole depth of the 16-inch production string of casing is at ±3,700 feet from surface, with a welded float shoe located at the bottom of the casing string. This string will have buttress connections. The worst-case scenario for collapse pressure would be a full column of cement in the casing/hole annulus, and gas (from a blowout) inside the 16-inch surface casing.

- (2,000 feet) (0.052 psi/ft/lb/gal) (16.3 lb/gal cement) = 1,695 psi hydrostatic pressure exerted on the exterior of the 16-inch casing, at 2,000 feet.
- (3,700 feet) (0.052 psi/ft/lb/gal) (16.3 lb/gal cement) = 3,136 psi hydrostatic pressure exerted on the exterior of the 16-inch casing, at 3,700 feet.
- Differential pressure, collapse pressure), annulus pressure verses pressure inside the 16-inch casing equals: 1,695 psi – 0 psi = 1,695 psi. According to Lone Star Steel, the 16-inch N-80 95 lb/ft casing has a collapse rating of 2,180 psi.
- Differential pressure, collapse pressure), annulus pressure verses pressure inside the 16-inch casing equals: 3,136 psi – 0 psi = 3,136 psi. According to Lone Star Steel, the 16-inch N-80, 118-lb/ft casing has a collapse rating of 3,680 psi.

According to the above differential calculations, the proposed 16-inch casing to be used has a collapse rating greater than any outside pressure that will be exerted against the exterior of the casing.

2.2.5.2 Burst Calculations

Assume that the bottom-hole depth of the 16-inch surface casing is at ±3,700 feet from surface, with a welded float shoe located at the bottom of the casing string. The 16-inch surface casing will be loaded with 10.4 lb per gallon drilling mud. The actual cement process will be down drill pipe, which will be stung into the float shoe at 3,700 feet so the inside of the casing will not be filled with cement. The worst case for burst considerations would be if there was a gas blowout

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in the salt after the casing was set but before it was cemented. This could potentially leave a column of gas along the outside of the casing.

- (2,000 feet) (0.052 psi/ft/lb/gal) (10.4 lb/gal drilling mud) = 1,082 psi hydrostatic pressure exerted on the interior of the 16-inch casing, at 2,000 feet.
- (3,700 feet) (0.052 psi/ft/lb/gal) (10.4 lb/gal drilling mud) = 2,001 psi hydrostatic pressure exerted on the interior of the 16-inch casing, at 3,700 feet.
- Differential pressure (burst pressure), inside pressure verses annulus pressure on the outside of the 16-inch casing equals: 1,082 psi – 0 psi = 1,082 psi. The 16-inch casing above 2,000 feet has a minimum test pressure of 4,950 psi. According to the above differential calculations, the proposed 16-inch surface casing to be used has a minimum test pressure greater than any inside pressure that will be exerted against the interior of the casing.
- Differential pressure (burst pressure), inside pressure verses annulus pressure on the outside of the 16-inch casing equals: 2,001 psi – 0 psi = 2,001 psi. According to Lone Star Steel, the 16-inch casing has a minimum test pressure of 6,260 psi. According to the above differential calculations, the proposed 16-inch surface casing to be used has a minimum test pressure greater than any inside pressure that will be exerted against the interior of the casing.
- During mining operations, the 16-inch casing annulus will be filled with nitrogen used as a blanket during mining operations. At the surface, the maximum gas pressure will be about 2,028 psi / [2.718282 ^ (0.00003347 * 0.58 * 3700)] = 1,887 psi. The wellhead gas pressure is below the rated burst pressure of 4,950 psi of the 16-inch casing at the surface.

2.2.5.3 Tensile Calculations

The 16-inch surface casing will be set at approximately 3,700 feet, for a total string weight of 391,600 lbs. Lone Star Steel provides a tensile strength for buttress end casing of 1,326,000 pounds; which greatly exceeds the above-calculated weight of the 16-inch casing.

2.2.6 Outer String of Mining Tubing

13-3/8-inch, 72 lb/ft, wall thickness 0.514-inch, N-80 Grade, buttress connection, casing from 0 to 4,500 feet.

2.2.6.1 Collapse Calculations

Assume that the nitrogen roof blanket will be at a depth of ±3,900 feet from surface, the maximum differential pressure exerted against the 13-3/8-inch casing will be at the surface.

The worst-case scenario for collapse pressure would be a column of freshwater in the casing (during the first steps of mining) that goes on a vacuum when the well is shut-in and the brine in the cavern continues to dissolve salt; and nitrogen is in the annulus.

- (3,900 feet) (0.052 psi/ft/lb/gal) (10.0 lb/gal brine) = 2,028 psi hydrostatic pressure exerted on the exterior of the 13-3/8-inch casing, at 3,900 feet. The nitrogen pressure on the outside of the string and the brine pressure in the cavern are balanced at this point.

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- Pressure outside the 13-3/8-inch at the surface is (nitrogen blanket pressure) / (1.000316 ^ blanket level depth) = 2,028 / (1.0000316 ^ 3,900) = 1,793 psi.
- (3,900 feet) (0.052 psi/ft/lb/gal) (10.0 lb/gal brine) = 2,028 psi hydrostatic pressure exerted on the interior of the 13-3/8-inch casing, at 3,900 feet.
- Differential pressure, collapse pressure), annulus pressure verses pressure inside the 13-3/8-inch casing at the surface equals: 1,793 psi – (-100 psi) (vacuum) = 1,893 psi. According to API Bulletin 5C2, the 13-3/8-inch string casing has a collapse rating of 2,670 psi. According to the above differential calculations, the proposed 13-3/8-inch casing to be used has a collapse rating greater than the pressure that will be exerted against the exterior of the casing.

2.2.6.2 Burst Calculations

Assume that the bottom-hole depth of the 13-3/8-inch surface casing is at ±4,500 feet from surface, with an open end of the casing string. The 13-3/8-inch surface casing will be loaded with 10.0 lb per gallon brine during reverse mining steps. The worst case for burst considerations would be if the nitrogen blanket bled off and the bottom of the 13-3/8-inch tubing was salted into the 16-inch production casing during normal operations with a salt plug at or near the bottom of the 13-3/8-inch x 8-5/8-inch annulus. This could potentially leave a column of low-pressure gas along the outside of the tubing and high-pressure brine on the inside of the tubing string.

- 0 psi hydrostatic pressure exerted on the exterior of the 13-3/8-inch casing, at the 16-inch casing shoe.
- Pump pressure (Value unknown but assumed) 1,200 psi exerted on the 13-3/8-inch casing.
- Fluid pressure at 3,900 feet of (3,900 feet) (0.052 psi/ft/lb/gal) (8.34 lb/gal water) = 1,691 psi exerted on the interior of the 13-3/8-inch casing at 3,900 feet.
- Differential pressure (burst pressure), inside pressure verses annulus pressure on the outside of the 13-3/8-inch casing equals: 1,691 psi + 1,200 psi (assumed pump pressure) – 0 psi = 2,891 psi.

According to API Bulletin 5C2, the 13-3/8-inch casing has a minimum test pressure of 5,380 psi. According to the above differential calculations, the proposed 13-3/8-inch surface casing to be used has a minimum test pressure greater than any inside pressure that will be exerted against the interior of the casing.

2.2.6.3 Tensile Strength

At this time, the depth for the outer string tubing is 72 lb/ft casing to 4,500 feet. Based on these depths, the maximum string weight will be 324,000 lbs. This is well below the maximum tensile strength at the surface of 1,693,000 lbs.

2.2.7 Inner String of Mining Tubing

8-5/8-inch, 36 lb/ft, wall thickness 0.4-inch, K-55 Grade, buttress connection, casing from 0 to 4,950 feet.

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2.2.7.1 Burst and Collapse Calculations

The 8-5/8-inch inner wash string has the similar circumstance as the 13-3/8-inch outer string tubing, in that the tubing will have equal weight of fluids (brine water) on the outside as well as the inside, internal and external pressures will be equal. Therefore, since there will not be any differential pressures exerted externally or internally, burst and collapse calculations are not necessary. The 8-5/8-inch tubing will not have nitrogen acting against it.

2.2.7.2 Tensile Strength

At this time, the deepest depth for the inner tubing (8-5/8-inch 36 lb/ft) is estimated at approximately 4,950 feet. Based on this depth, the maximum string weight will be 178,200 lbs. This is well below the maximum tensile 690,000 lbs.

2.3 Sources

OCTG Products, 23rd Edition, Lone Star Steel

American Petroleum Institute, Specification for Line Pipe, API Specification 5L

American Petroleum Institute, Bulletin on Performance Properties of Casing, Tubing and Drill Pipe, API Specification 5C2

American Petroleum Institute, Technical Report on Equations and Calculations for Casing, Tubing and Line Pipe Used as Casing or Tubing; and Performance Properties Tables for Casing and Tubing, API Technical Report 5C3

Energy Resource Conservation Board, 2008. Minimum Casing Design Requirements, Directive 010

Section 3

Mechanical Integrity Testing

Several testing methods will be employed to demonstrate mechanical integrity of the well/cavern system. These methods vary depending upon the stage of development of the well or cavern.

3.1 During Drilling

After cementing the 16-inch production casing, the casing will be tested before continuing drilling. A hydraulic pressure test of the 16-inch production casing will be conducted before drilling out the plug (shoe) and after waiting at least 72 hours to allow the cement to set. The test pressure shall be 125% of the anticipated working pressure during product storage, about 2,020 psi at the cement plug or about 405 psi at the surface. The test will last 30 minutes. The test will be considered good if the pressure loss is less than 5%.

After drilling out the cement plug and drilling about 10 feet of salt below the casing shoe, a hydraulic pressure test of casing seat and cement in 16-inch production casing will be run. The surface test pressure will be 80% of the lithostatic pressure as calculated at the casing seat minus the hydrostatic pressure of the test fluid, or about 870 psi. The test will last 60 minutes. The test will be considered good if the pressure loss is less than 5%.

3.2 Test of the 16-Inch Casing and the Cavern during Development

Prior to initiating solution mining and again at the completion of solution mining, the cavern will be tested using the nitrogen mechanical integrity technique. The test pressure at the shoe of the 16-inch cemented casing will be about 0.75 psi per foot of depth, or about 0.23 psi per foot greater that the normal operating pressure (0.52 psi per foot of depth) to ensure that the casing and cement are not leaking.

The nitrogen mechanical integrity test technique essentially involves pressuring the well, and cavern after mining, to the desired test pressure, and injecting nitrogen in the outer annulus of the well (the space between the cemented 16-inch casing and the hanging 13-3/8-inch tubing) to a depth about 50 to 100 feet below the casing shoe.

The well will then be shut-in for 24 to 48 hours to allow the nitrogen temperature to equalize with the in-situ temperature. The initial depth of the nitrogen/brine interface below the casing shoe and the temperature of the wellbore will then be measured with a wireline tool. After a period of time, not less than 24 hours, determined by the size of the borehole below the casing shoe, a second interface and temperature survey will be run. The pressure at the wellhead will be monitored and recorded continuously during testing.

The change in the calculated volume of the nitrogen between the two interface measurements will be determined from the surface nitrogen pressure, the well temperature logs and the change in the

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level of the nitrogen/brine interface. The change in the nitrogen volume will then be converted to an equivalent fluid loss.

The temperature stabilization period, the duration of the test and the desired depth of the initial nitrogen/brine interface level will be determined from logs run during and after well construction. The selection of these features will be made so as to ensure that the test has a minimum detectable leak rate (test sensitivity) of no more than 500 barrels per year of nitrogen. An acceptable test will be a demonstration that the calculated leak rate is less than the minimum detectable leak rate.

All pressure monitoring instruments will be calibrated in accordance with manufacturer's recommendations. Testing will be performed under the supervision of a degreed engineer experienced in salt cavern testing. The report will be submitted to the Executive Secretary within 60 days of completion of the test.

3.3 Storage Operations

Following the post-completion mechanical integrity test, the caverns will be tested on a periodic basis using methods and procedures in accordance with requirements set forth by the State of Utah.

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Section 4

Operating Plan and Procedures

4.1 16-Inch Injection Well Operating Plan and Procedures

The injection well operating plan and procedures is outlined within the report "Conceptual Solution Mining Plans for Development of 16-Inch Injection Wells at Delta, Utah". A Cavern Well Schematic is also shown in **Exhibit A: Wellhead Casing Design**. The report generally defines the following operating criteria:

- Average Daily Rate: 2,500 gpm
- Maximum Daily Rate: 2,500 gpm
- Volume of Fluid to be Injected during Solution Mining (1 MMbbl cavern): 12 MMbbls of brine (504 million gallons), (see DWQ UIC Modification, October 21, 2011, Permit UTU-27-AP-9232389)
- Average Injection Pressure: 700 psi
- Maximum Injection Pressure: 700 psi

Exhibit A: Wellhead Casing Design and the "16-Inch Well Construction Plan" also includes information related to the mining methods and stages, tubing placements, testing, and information related to potential problems that could be associated with cavern creation.

Injected water will be obtained from local ground water sources within confined aquifers located generally at depths greater than 1,450 feet. Representative water quality data collected from exploratory well MH-1 within potential source zones was previously provided in the DWQ Underground Injection Control Permit application. Because the source of water is a new source, no quality range data is available for the source. However, little variation is expected due to the limiting nature of the confined aquifer.

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Section 5

Plugging and Abandonment Plan

5.1 16-Inch Injection Well Plugging and Abandonment Plan

The following procedures are provided as a general guideline. Actual plugging measures will be submitted in advance to DWQ (prior to commencement of product storage) or DOGM (after commencement of storage operations) for approval.

1. Form DOGM-9 will be submitted (after commencement of product storage) for procedural approval.
2. All stored product will be removed and the cavern will be filled with saturated brine water.
3. All free hanging tubing will be pulled from the well.
4. The exact depth to the bottom of the cemented production casing will be determined.
5. A drillable plug capable of supporting a cement plug will be installed in the cemented casing with the bottom of the plug within 10 feet of the end of the casing.
6. The following plugs will be placed. All cement plugs will be Class G cement with no additives and the slurry weight will be 14.5 pounds per gallon or more.
    a. Bottom plug: A 300-foot plug from the plug at the bottom of the production casing upward.
    b. Surface casing plug: A 150-foot plug from 75 feet below the bottom of the surface casing upward.
    c. Top plug: A 75-foot plug from 75 feet below surface grade upward to surface.
7. The casing between each of the plugs shall be filled with a non-corrosive mud slurry of at least 10 pounds per gallon weight.
8. An alternative technique that could be used involves filling the entire wellbore with cement.

Upon completion of the plugging operation, all reports will be filed in accordance with DWQ or DOGM rules as applicable.

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Appendix A

Exhibits

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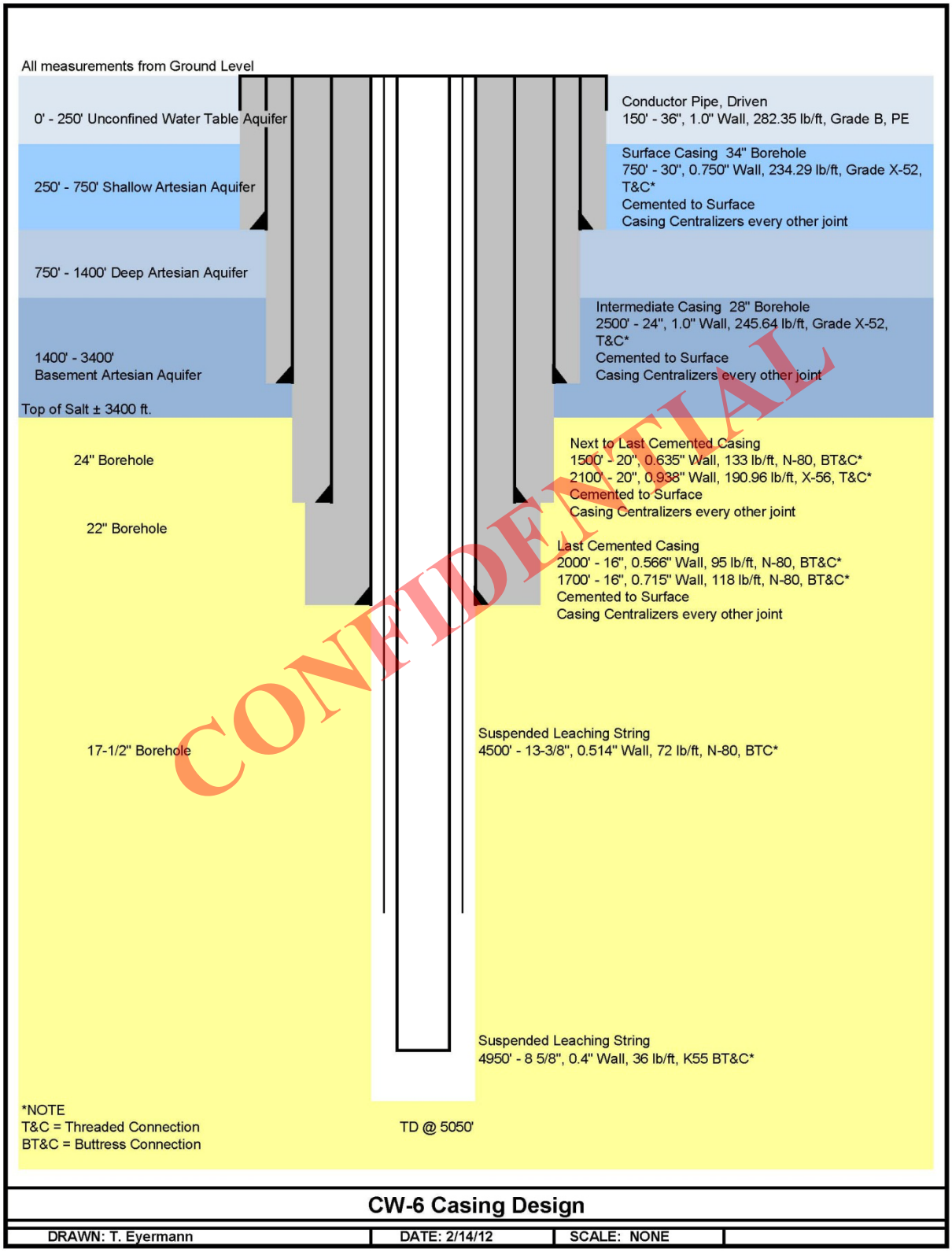

Exhibit A: Wellhead Casing Design
Magnum Cavern Well 6

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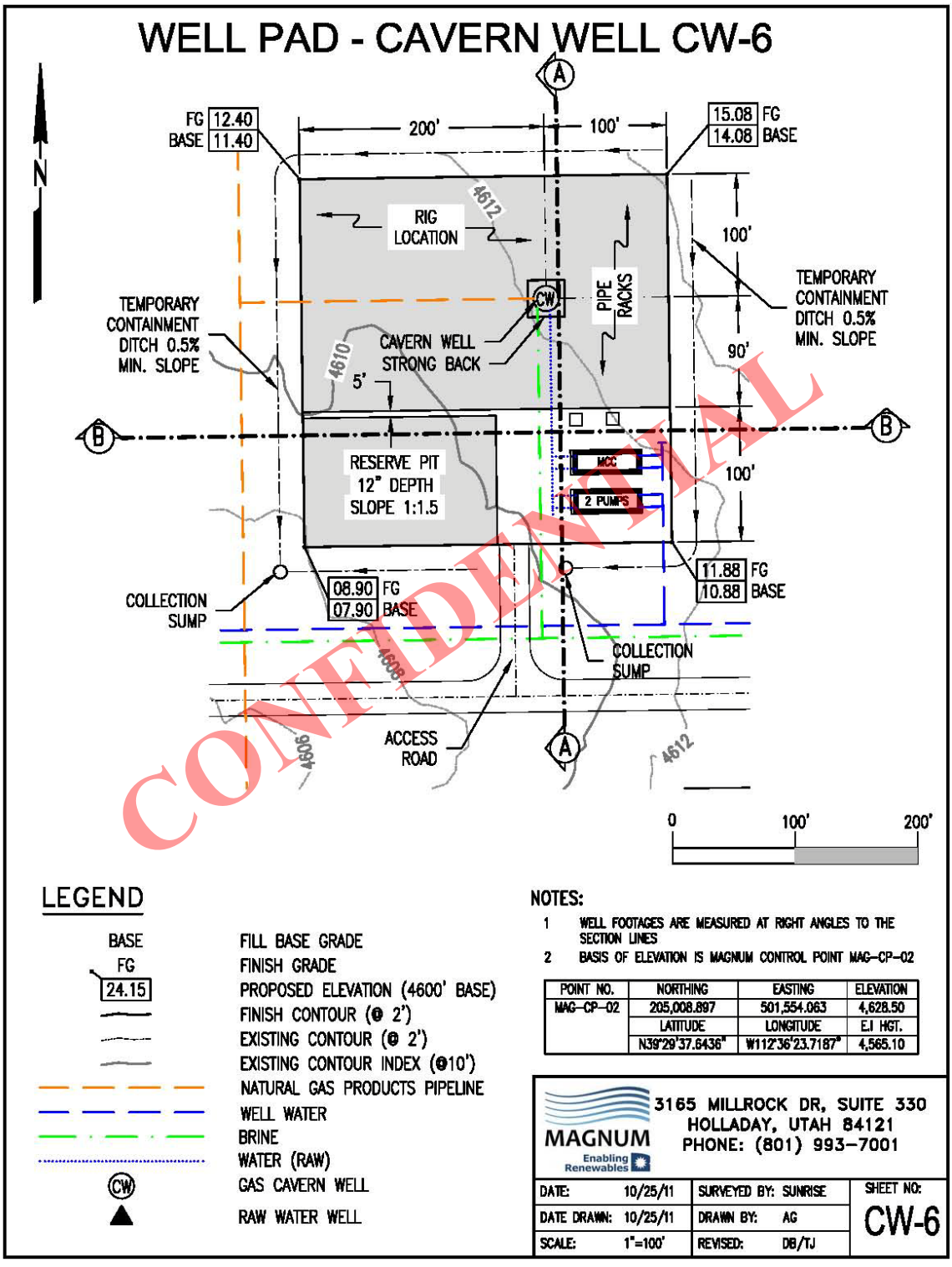

Exhibit B: Well Pad
Magnum Cavern Well 6

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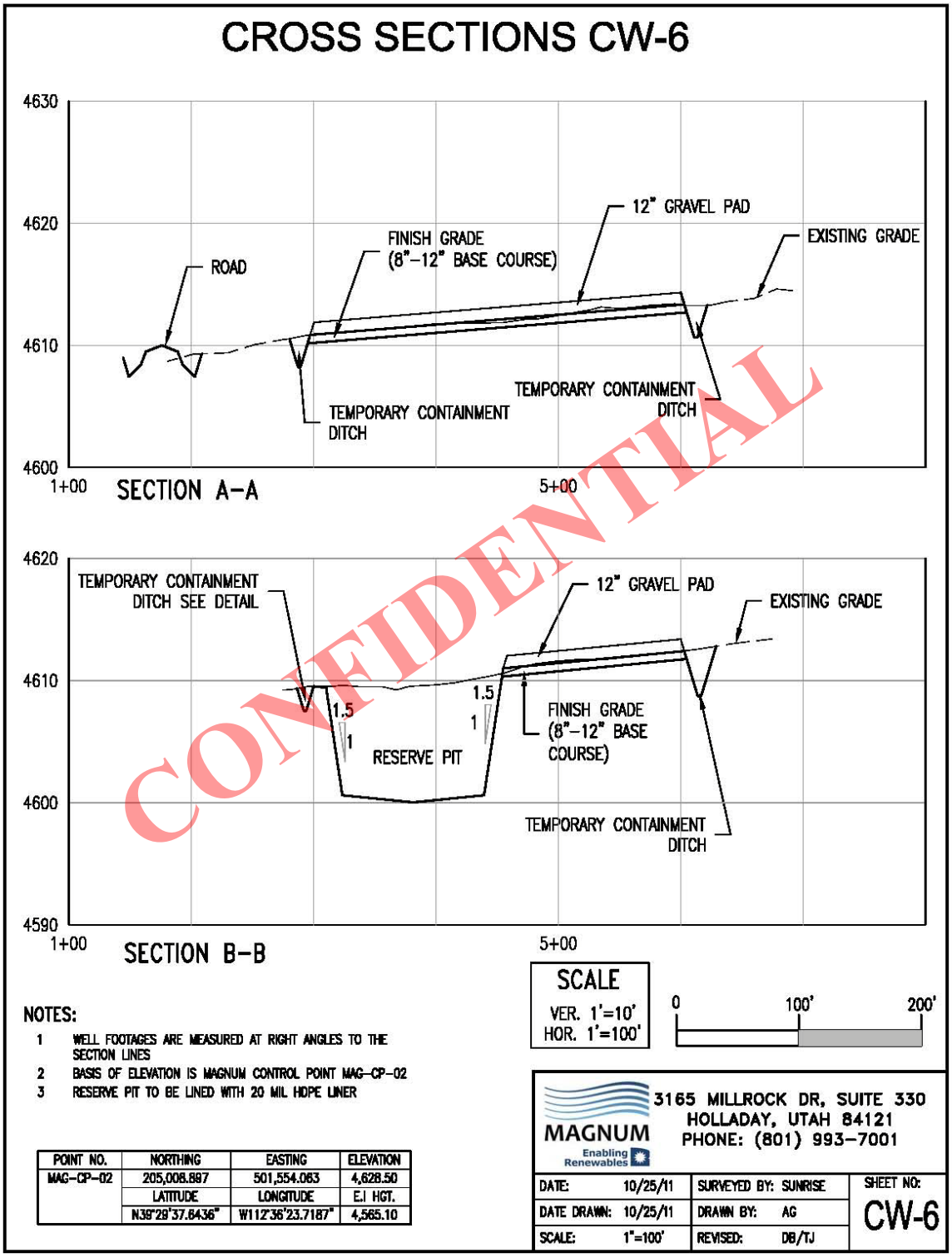

Exhibit C: Well Pad Cross Sections
Magnum Cavern Well 6

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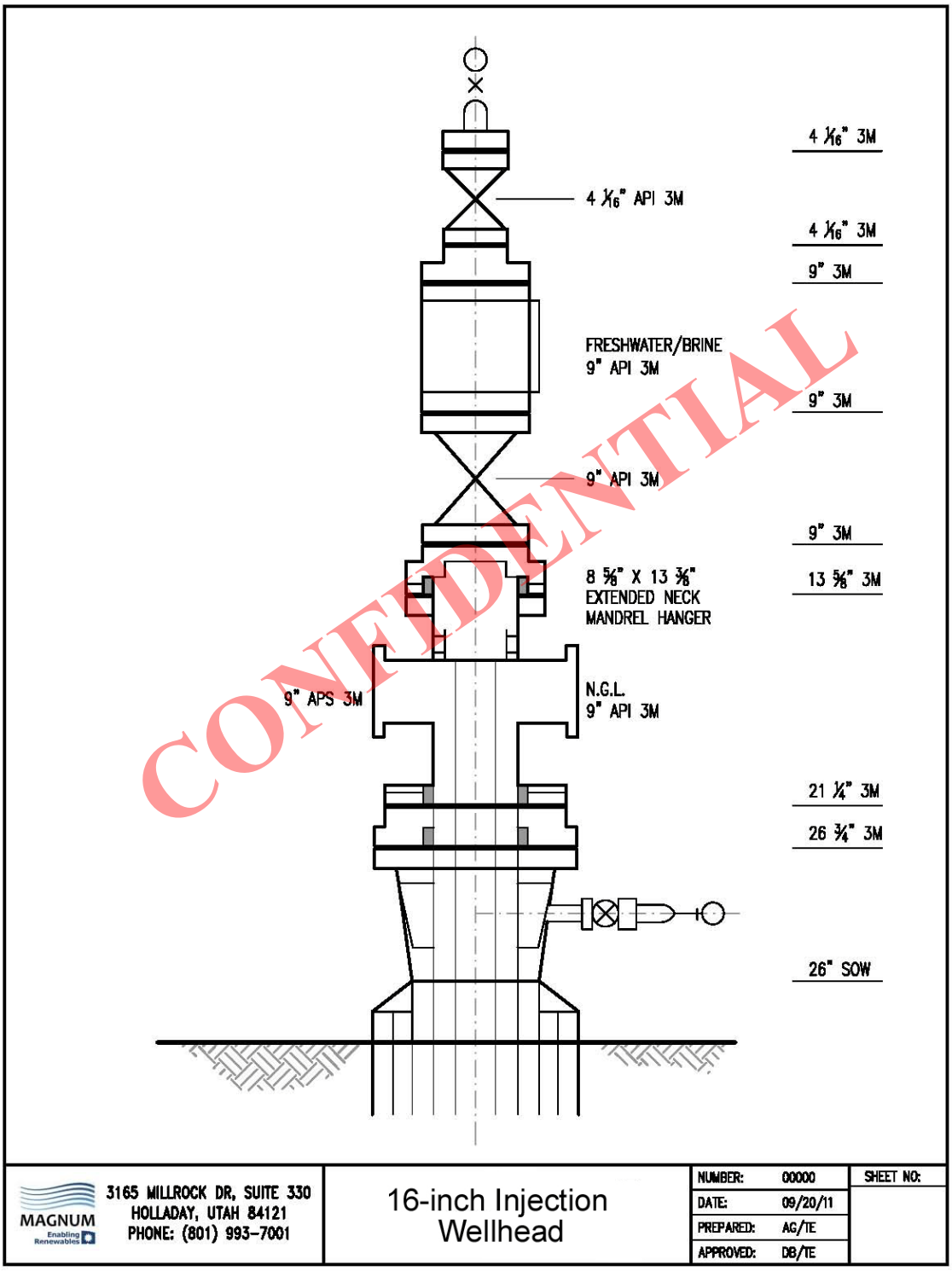

Exhibit D: Injection Wellhead Design
Magnum Cavern Well 6

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Application for Permit to Drill
Magnum Cavern Well 6

Certified Section Map and Plat Map

11/04/2011

Prepared by:

Magnum
3165 E. Millrock Dr., Suite 330
Holladay, Utah 84121
Tel 801 993 7001 Fax 801 993 7025
www.westernenergyhub.com

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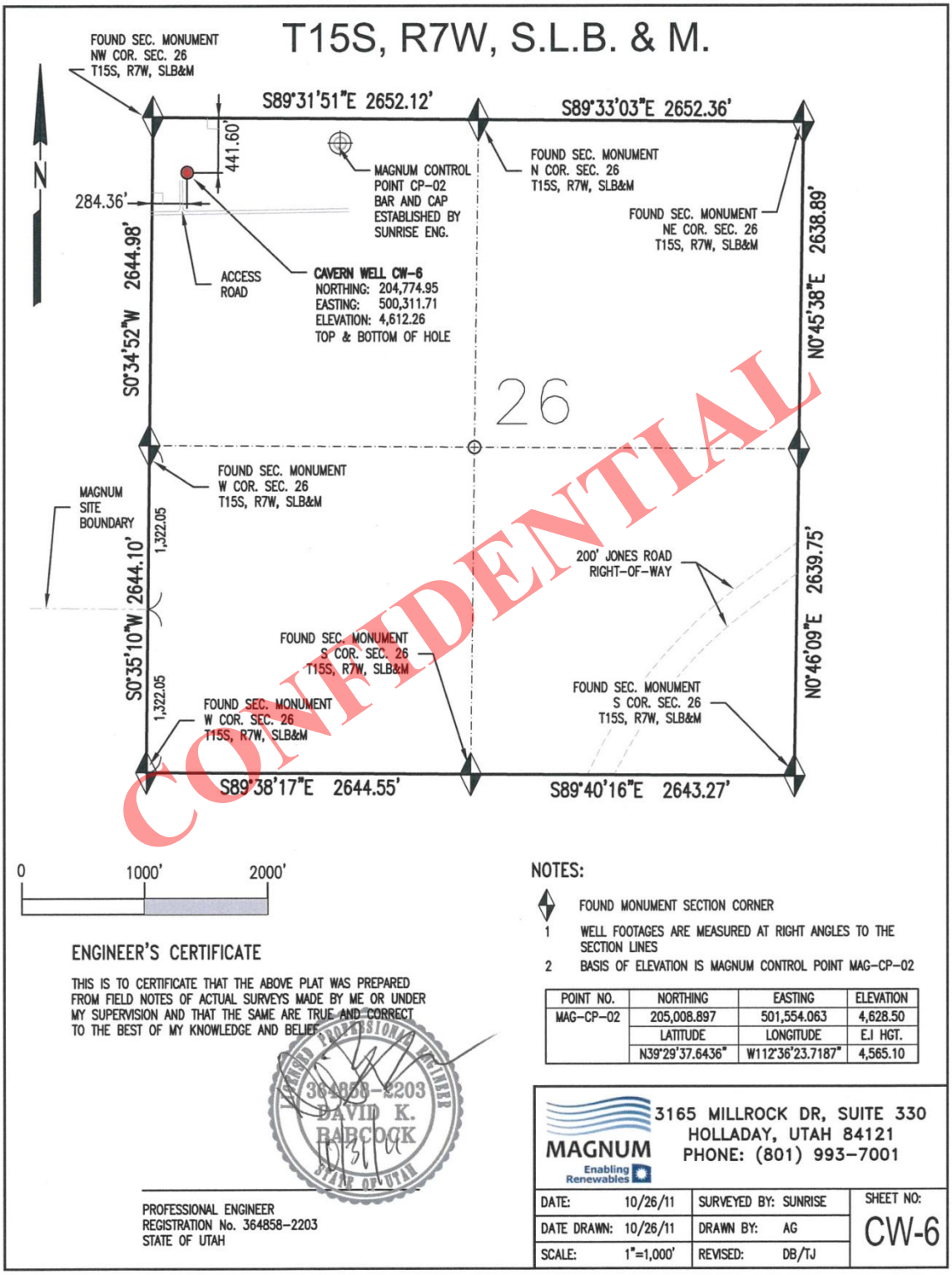

Certified Section Map
Magnum Cavern Well 6

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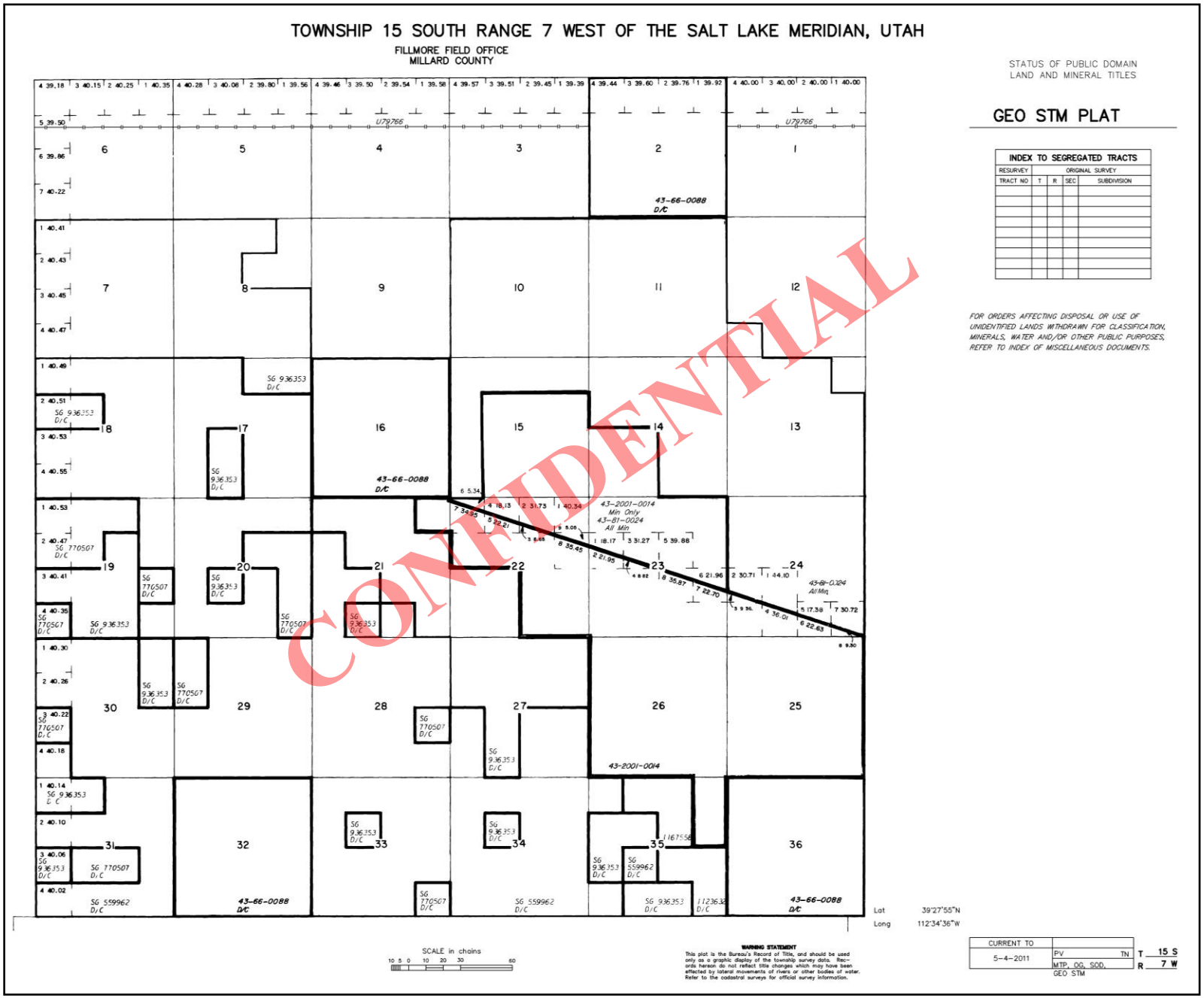
API Well Number: 43027500030000



Plat Map

Magnum Cavern Well 6

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API Well Number: 43027500030000

Application for Permit to Drill
Magnum Cavern Well 6

Topographical Maps

11/04/2011

Prepared by:

Magnum
3165 E. Millrock Dr., Suite 330
Holladay, Utah 84121
Tel 801 993 7001 Fax 801 993 7025
www.westernenergyhub.com

RECEIVED: November 04, 2011

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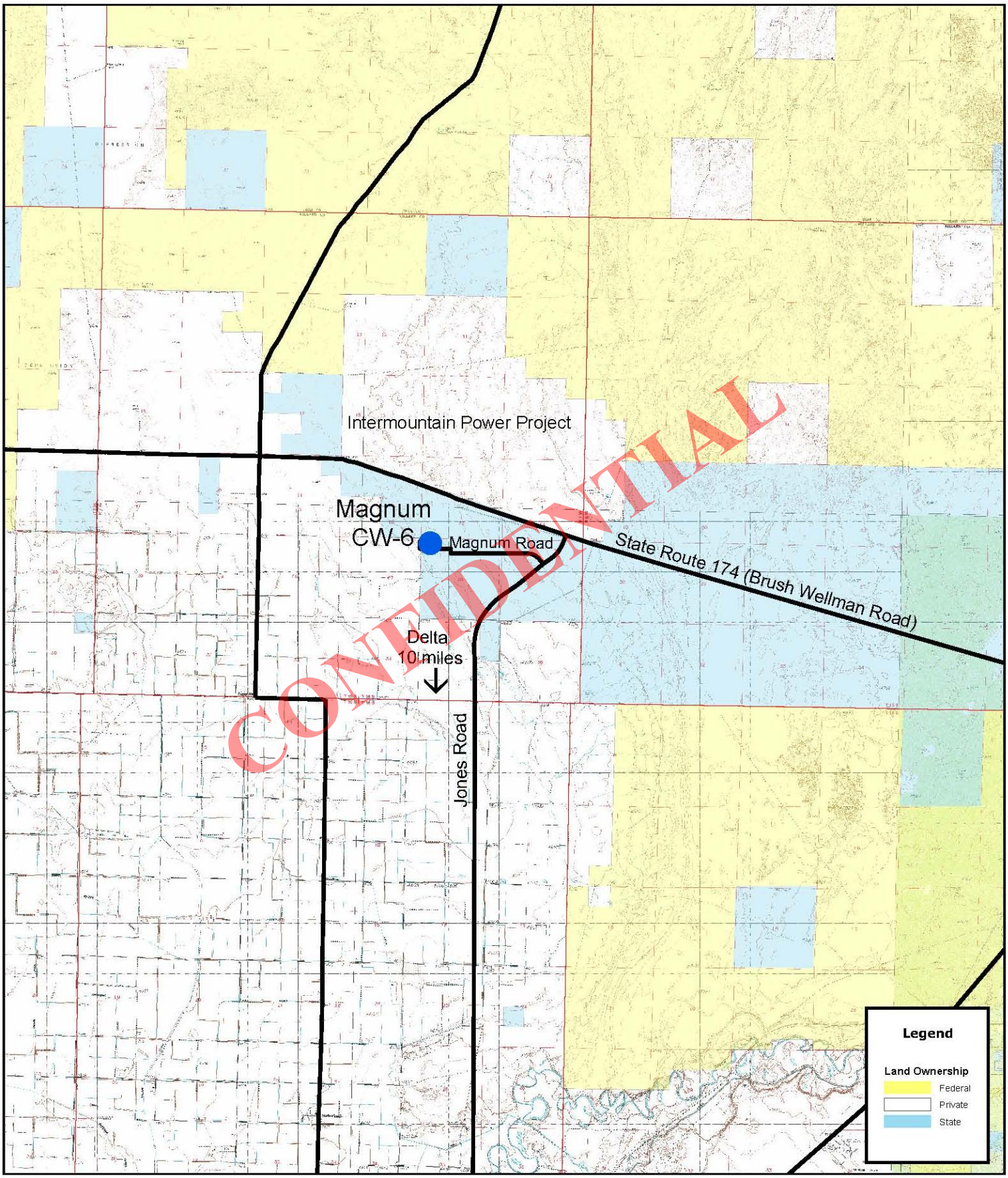


MAGNUM
Enabling Renewables

Regional Map
Magnum Cavern Well 6

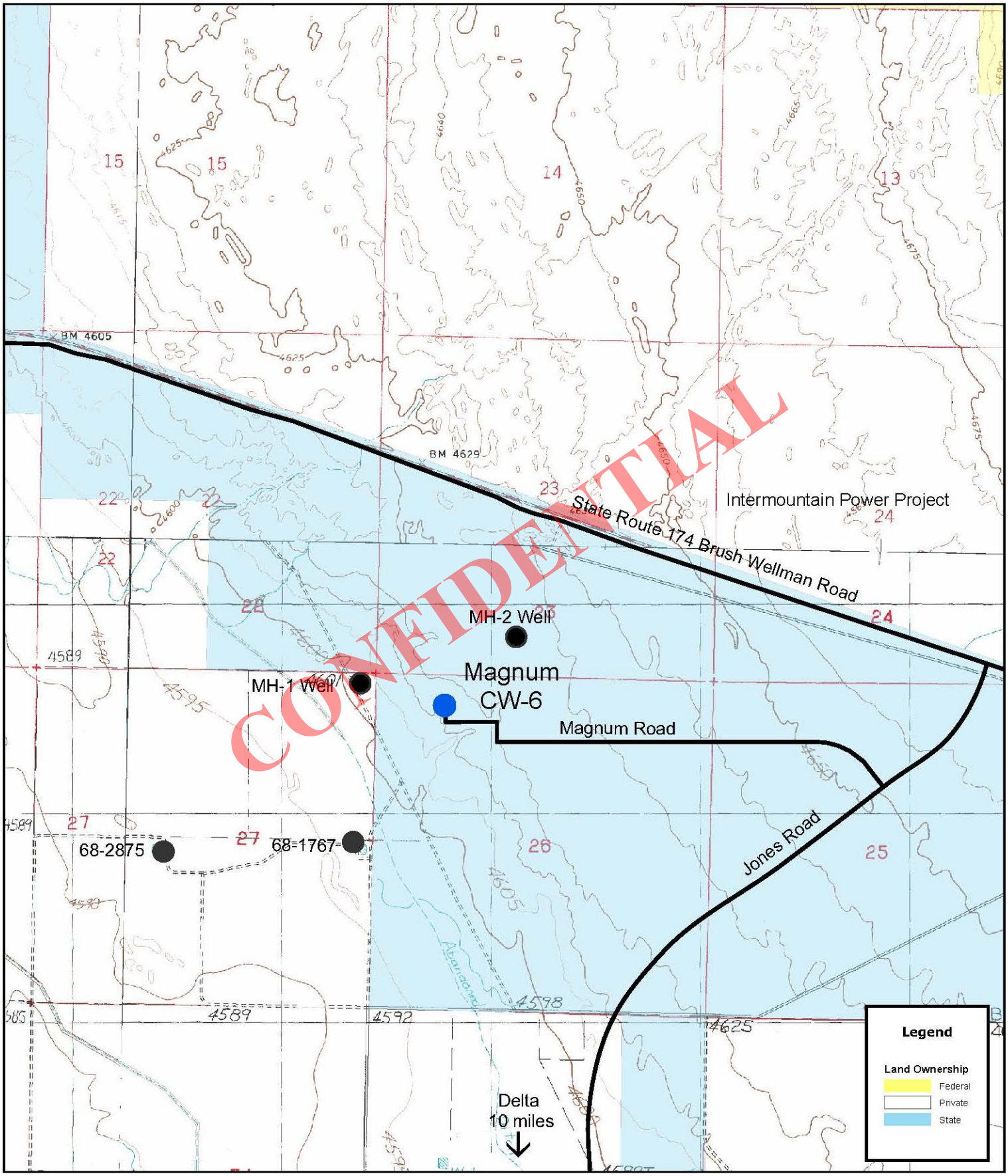
NW/NW Section 26, T 15S, R 7W

N

Miles
1

1:100,000

API Well Number: 43027500030000



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Location Map
Magnum Cavern Well 6

NW/NW Section 26, T 15S, R 7W

N

Miles
0.5

1:24,000

Application for Permit to Drill Storage Cavern Well 6

Affidavit of Surface Owner Agreement

11/04/2011

Prepared by:

Magnum
3165 E. Millrock Dr., Suite 330
Holladay, Utah 84121
Tel 801 993 7001Fax 801 993 7025
www.westernenergyhub.com

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FIRST AMENDMENT

To

ENERGY STORAGE AND DEVELOPMENT LEASE

STATE OF UTAH LEASE NUMBER 51573-OBA

Between

THE STATE OF UTAH, acting through the SCHOOL AND INSTITUTIONAL TRUST LANDS ADMINISTRATION, as Lessor

and

MAGNUM HOLDINGS, LLC a Utah limited liability company, as Lessee

Effective as of June 1, 2009

FIRST AMENDMENT

To

ENERGY STORAGE AND DEVELOPMENT LEASE STATE OF UTAH LEASE NUMBER ML 51573-OBA

THIS FIRST AMENDMENT TO ENERGY STORAGE AND DEVELOPMENT LEASE ("**First Amendment**"), is entered into effective as of the 1st day of June, 2009, by and between the **STATE OF UTAH**, acting by and through the **SCHOOL AND INSTITUTIONAL TRUST LANDS ADMINISTRATION** ("**Lessor**"), and **MAGNUM HOLDINGS, LLC**, a Utah limited liability company ("**Lessee**"). Lessor and Lessee are sometimes referred to herein as a "**Party**" or collectively as "**Parties**."

RECITALS:

A. The Parties have previously entered into that certain Energy Storage and Development Lease, State of Utah Lease Number ML 51573-OBA, dated January 22, 2009 ("**Lease**"). Capitalized terms used, but not otherwise defined in this First Amendment, shall have the meanings assigned under the Lease.

B. Based on the results of the initial phase of cooperative exploration of the Leased Lands and the Private Lands, and as contemplated under **Section 2.8** "Elimination of Surplus Lands," and **Section 6.2(a)** "Addition of Portions of Adjacent Lands," the Parties desire to amend the Lease to include certain Adjacent Lands in the Leased Lands as provided in this First Amendment.

C. With the exception of these adjustments in the Leased Lands, and corresponding adjustments in the annual minimum rental and other provisions regarding Lessee's use of and Lessor's retained rights in the Leased Lands all remaining provisions of the Lease remain in full force and effect.

AGREEMENT:

IN CONSIDERATION of the foregoing recitals, the mutual promises contained herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Lessor and Lessee hereby agree as follows:

1.1 Pursuant to **Section 2.8**, "Elimination of Surplus Lands," Lessee hereby releases and Lessor hereby accepts and removes the following lands from the Leased Lands:

Township 15 South, Range 7 West, SLB&M	Surface/ Mineral Acres
Section 35: E/2NE	80.00
Township 15 South, Range 7 West, SLB&M	**Minerals Only Acres**
Section 36: All	640.00

1.2 Pursuant to **Section 6.2 (a)**, "Possible Addition of Portions of Adjacent Lands," Lessor hereby adds and Lessee hereby accepts the addition of the following lands to the Leased Lands. The Parties agree that the existing terms and conditions of the Lease constitute market based terms, and that the addition of these lands to the Leased Lands under these terms constitute a lease on market based terms within the intended meaning of **Section 6.2 (a)**:

Township 15 South, Range 6 West, SLB&M	Surface/ Mineral Acres
Section 19: E/2, SESW	360.00
Section 30: All (Lot 5(39.99), N/2, SW, N/2SE, SWSE	639.99

1.3 The reference in **Recital A** to the number of surface and mineral acres included in the Leased Lands is amended from "2,708" to "3,628," and the reference to the number of mineral only acres in the Leased Lands is amended from "1,581" to "941."

1.4 **Exhibit A**, "Leased Lands," and **Exhibit D**, "Project Area Map," attached hereto and by this reference incorporated herein, are hereby amended and replaced in their entirety to conform with and reflect the adjustments to the Leased Lands effected by **Sections 1.1 and 1.2** of this First Amendment.

1.5 The Annual Rent payable by Lessee under **Sections 4.1 and 4.2** prior to the Operations Commencement Date is amended [redacted].

1.6 The Minimum Fee payable by Lessee under **Section 4.8** from and after the Operations Commencement Date is amended [redacted].

1.7 With the exception of the foregoing amendments, the Lease and all remaining provisions thereof remain as currently drafted and in full force and effect, including without limitation Lessor's reserved rights under **Section 2.7** to, among other things, establish new rights of way and easements upon, through or over the Leased Lands in favor of third parties that will not unreasonably interfere with Lessee's Authorized Uses under this Lease.

IN WITNESS WHEREOF, the parties hereto have executed this First Amendment to be effective as of the day and year first written above.

LESSOR:

STATE OF UTAH, ACTING THROUGH THE SCHOOL AND INSTITUTIONAL TRUST LANDS ADMINISTRATION

By _____
Kevin Carter, Director

Approved as to Form:

_____
John W. Andrews, Special Assistant Attorney General

LESSEE:

MAGNUM HOLDINGS, LLC, a Utah limited liability company

By _____
David K. Detton, Manager

EXHIBIT A
LEASED LANDS

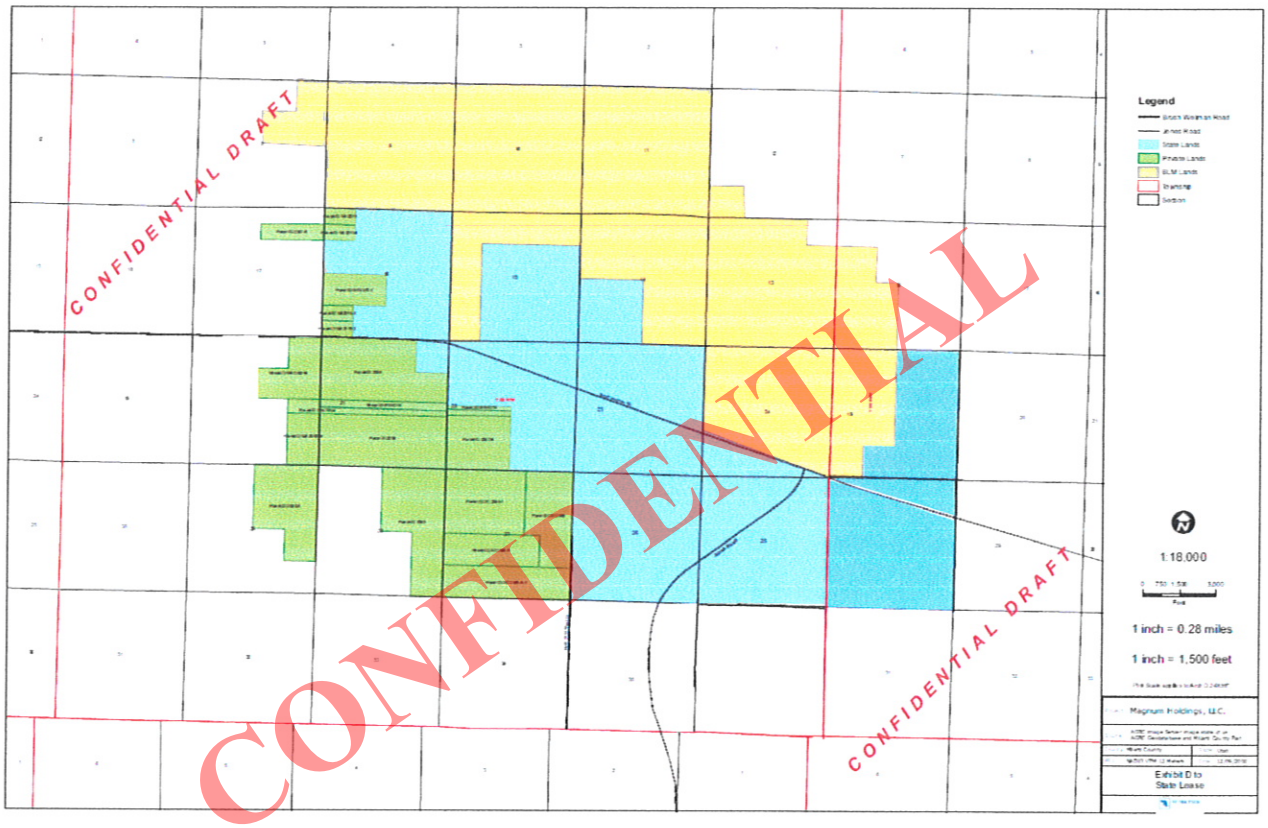
Township 15 South, Range 7 West, SLB&M	Surface/ Mineral Acres
Section 16: E/2, E/2NW, SWNW, SESW	480.00
Section 21: NENE	40.00
Section 22: Lots 3(8.65), 5(22.21), 7(34.95),8(35.45) SWNE, S/2NW, SE	381.26
Section 23: Lots 2(21.95), 4(8.82), 7(22.70), 8(35.87), SW, S/2SE	329.34
Section 24: Lots 3(9.36), 4(36.01), 6(22.63), 8(9.30), SWSW	117.30
Section 25: All	640.00
Section 26: All	640.00

Township 15 South, Range 6 West, SLB&M	Surface/ Mineral Acres
Section 19: E/2, SESW	360.00
Section 30: All (Lot 5(39.99), N/2, SW, N/2SE, SWSE)	639.99

Township 15 South, Range 7 West, SLB&M	Minerals Only Acres
Section 14: SW	160.00
Section 15: S/2NE, SENW, E/2SW, SE	360.00
Section 22: Lots 1(40.34), 2(31.73), 4(18.13), 6(14.08), 9(5.05)	109.33
Section 23: Lots 1(18.17), 3(31.27), 5(39.88), 6(21.96), N/2N/2, SENE	311.28

API Well Number: 43027500030000

EXHIBIT D
PROJECT AREA MAP



Application Checklist

Complete	Requirement Description	Application Page
	1. A completed and signed Form 3 (application to drill, deepen or reenter). Make sure all blanks are filled and boxes are checked	Attached - Online
	2. Contact information and phone number for surface owner	Surface Use Plan Section 1.11, p. 1-2
	3. Location plat	Certified Section Map and Plat Map
	4. Water Rights approval	Surface Use Plan Appendix A, p. A-1
	5. Estimated geologic markers	Drilling Plan Appendix A, Exhibit A, p. A-2
	6. Estimated top and bottom of anticipated water, oil, gas, other mineral zones and plans for their protection	Drilling Plan Appendix A, Exhibit A, p. A-2
	7. Plan for pressure control (BOPE), including schematic and casing test	Blowout Preventer
	8. Description of mud system, including mud weights	Drilling Plan Table 1-1, p. 1-7
	9. Plans for testing, logging and coring	Drilling Plan Section 1.2, p. 1-2
	10. Expected bottom hole pressure, any anticipated abnormal pressures, temperatures, or hazards and plans for mitigation of them	Drilling Plan Section 1.1, p. 1-2
	11. Casing design (size, type, weight)	Drilling Plan Section 2, p. 2-1
	12. Cement design (type, weight, yield, estimated top, # sacks)	Drilling Plan Section 1.4, p. 1-5
	13. Diagram of horizontal or directional well bore path including directional survey plan	Not Applicable
	14. Designation of agent if necessary	Not Applicable
	15. Bond	Bond to be Posted
	16. Affidavit of Surface Agreement	Affidavit of Surface Owner Agreement
	17. Exception location application (if needed)	Not Applicable
	18. Plat showing surface location, section and lease lines, target location, points along the well bore where owner consent has been obtained	Certified Section Map and Plat Map
	19. Reason for deviation	Not Applicable

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API Well Number: 43027500030000

Application for Permit to Drill Magnum Cavern Well 6

Surface Use Plan

MAGNUM
Enabling Renewables

API Well Number: 43027500030000

Application for Permit to Drill
Magnum Cavern Well 6

Surface Use Plan

11/04/2011

Prepared by:

Magnum
3165 E. Millrock Dr., Suite 330
Holladay, Utah 84121
Tel 801 993 7001 Fax 801 993 7025
www.westernenergyhub.com

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Table of Contents

Appendices

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Section 1

Surface Use Plan

1.1 Existing Roads

Access to the project from the east will be on State Route 174 (Brush Wellman Road) and Jones Road from the south. Existing roads will not be improved or changed (see **Regional Map**).

1.1.1 Directions to location

From Delta, Utah, head north on Road N 1000 W for 1.6 miles. Just after the road turns west and into Road W 1500 N, turn north onto Jones Road for approximately 7.4 miles. Turn west onto Magnum Road (to be constructed), approximately 0.5 miles south of the intersection of Brush Wellman Road, south of the Intermountain Power Plant. Travel approximately 1.4 miles to Cavern Well 6 (CW-6) well pad (to be constructed) (see **Location Map**).

1.2 Access Roads

An access road will be constructed from Jones Road approximately 9,259 feet west to the MH-1 well. The CW-6 well pad is located to the north of Magnum Road, prior to reaching the MH-1 well. Access roads will generally be constructed to Millard County Road Design Standards. Construction will use the materials in place and additional material will be purchased from regional commercial pits and hauled to the site.

1.3 Location of Existing Wells within One Mile

There are three wells currently located within one mile of the proposed CW-6 (see **Location Map**):

- MH-1 water supply well;
- Abandoned well 68-1767; and
- Private irrigation well 68-2875.

1.4 Location of Production Facilities

Production facilities will be installed on newly constructed drilling pad for CW-5 (see **Location Map** and **Certified Section Map**). Five utility lines will be constructed:

- Electric supply line;
- Well water supply line; and
- Brine discharge/supply line;
- Raw water line for solution mining;
- Natural gas products line.

All temporary disturbed areas related to production facilities will be reclaimed.

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1.5 Location and Type of Water Supply

Water for drilling will be supplied by Magnum MH-1 and MH-2 water wells. The MH-1 well is located to the northwest and MH-2 well will be located to the northeast of the proposed CW-6 well (See **Location Map**).

1.6 Construction Materials

Soil for construction will come from the site. Gravel will be purchased from a local supply vendor. Piping will be purchased from a supply vendor and stored on site.

1.7 Methods of Disposing of Waste Materials

Drill cuttings will settle out in the reserve pit. The reserve pit will be lined with a 20-mil HDPE liner (see **Well Pad Cross Sections**). The cuttings will be hauled off and disposed of at an approved facility by contractor. Liquids in the pit will be evaporated. Any remaining liquids will be disposed of at an approved disposal site by the contractor. Sewage facilities and disposal will be furnished and maintained by a local vendor. All garbage will be stored in appropriate containers and regularly hauled off-site to an approved facility.

1.8 Ancillary Facilities

After drilling is complete, modular solution mining facilities will be installed in the southeast portion of the CW-6 well pad for solution mining of the storage cavern.

1.9 Well Site Layout

The exhibits **Well Pad** and **Well Pad Cross Sections** depict the well site layout. As shown: the drill rig will be set up in the northwest portion of the pad; the reserve pit will be located in the southwest corner of the location; the pipe racks will be located east of the drill rig.

1.10 Plan for Restoration of Surface

Restoration of all temporarily disturbed areas around the CW-6 well pad will be graded and reseeded according to the Utah School and Institutional Trust Lands Administration (SITLA) requirements.

1.11 Surface Ownership

SITLA is the owner and land administrator for Section 26 T15S, R7W. Magnum Holdings, LLC currently holds an Energy Storage and Development Lease (Number 51573-OBA) from SITLA to develop the property. A redacted copy of the First Amendment to the Lease Agreement describing the leased land has been provided in the Affidavit of Surface Owner Agreement. SITLA can be reached at:

State Institutional Trust Lands Administration
675 East 500 South
Suite 500
Salt Lake City, UT 84102

801-538-5100
Attn: LaVonne Garrison

1.12 Evidence of Water Rights

The State Engineer has approved multiple Temporary Change Applications allowing use of existing water rights at the Project site. A representative Order approving the Temporary Change Application for the City of Delta (Number 68-396) is provided in **Appendix A** of this Surface Use Plan. This Order is representative of similar Orders received by Magnum for the Project. At this time, water will be withdrawn from the existing MH-1 water well and the proposed MH-2 water well (see **Location Map** for details).

1.13 Other Information

- Current vegetation at the site consists of open scrub/shrub with sagebrush, greasewood, rabbitbrush, saltbush, and mixed bunchgrasses.
- Magnum has received all environmental clearances from Division of Wildlife Resources and Utah State Historic Preservation Office.

1.14 Company Representative

Tiffany A. James
Director, Government Relations
and Environmental Services
Magnum Gas Storage, LLC
3165 East Millrock Drive, Suite 330
Holladay, UT 84121
Phone: (801) 993-7001
Cell: (801) 719-9131
tjames@westernenergyhub.com

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Appendix A

Evidence of Water Rights

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GARY R. HERBERT
Governor
GREG BELL
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES
Division of Water Rights

MICHAEL R. STYLER
Executive Director

KENT L. JONES
State Engineer/Division Director

ORDER OF THE STATE ENGINEER
For Temporary Change Application Number 68-396 (t37232)

Temporary Change Application Number 68-396 (t37232) in the name of Delta City, was filed on March 22, 2011, to add additional points of diversion, add an additional place(s) of use and change the nature of use of 2.6305 cubic feet per second (cfs) or 1029.29 acre-feet (af) of water as evidenced by Water Right Numbers 68-2835, 68-2909, and 68-396. Heretofore, the water has been diverted from the following points located: (1) Well - South 340 feet and West 1550 feet from the E¼ Corner of Section 12, T17S, R7W, SLB&M (existing 16-inch well, 856 feet deep); (2) Well - North 191 feet and East 916 feet from the SW Corner of Section 27, T16S, R6W, SLB&M (existing 16-inch well, 1000 feet deep); (3) Well - South 30 feet and West 20 feet from the NE Corner of Section 17, T17S, R6W, SLB&M (existing 16-inch well, 834 feet deep); (4) Well - North 1590 feet and East 719 feet from the SW Corner of Section 6, T17S, R7W, SLB&M (existing 14-inch well, 737 feet deep); (5) Well - South 594 feet and West 1334 feet from the NE Corner of Section 12, T17S, R7W, SLB&M (existing 10-inch well, 703 feet deep); (6) Well - North 2761 feet and West 144 feet from the E¼ Corner of Section 12, T17S, R7W, SLB&M (existing 12-inch well, 860 feet deep). The water was used for municipal purposes within the service area of Delta. The water was used in all or portion(s) of Section 33, T16S, R6W, SLB&M; Section 34, T16S, R6W, SLB&M; Section 3, T17S, R6W, SLB&M; and Section 4, T17S, R6W, SLB&M.

Hereafter, it is proposed to divert 2.6305 cfs or 998.49 acre-feet of water from the same points as heretofore and from additional points located: (1) Well - North 15 feet and East 2895 feet from the SW Corner of Section 23, T15S, R7W, SLB&M (16-inch well, 1500 feet deep); (2) Well - South 30 feet and West 60 feet from the NE Corner of Section 27, T15S, R7W, SLB&M (16-inch well, 1500 feet deep); (3) Well - South 335 feet and East 2070 feet from the NW Corner of Section 26, T15S, R7W, SLB&M (16-inch well, 1500 feet deep); (4) Well - North 555 feet and East 2180 feet from the SW Corner of Section 23, T15S, R7W, SLB&M (16-inch well, 1500 feet deep); (5) Well - North 205 feet and East 1355 feet from the SW Corner of Section 23, T15S, R7W, SLB&M (16-inch well, 1500 feet deep). The nature of use of the water is being changed to the irrigation of 5.00 acres from April 1 to October 31, the indoor domestic requirements of 20 equivalent domestic units from January 1 to December 31, and for industrial purposes (Industrial Processes & Associated Activities). The place of use of the water is to remain the same as heretofore, but adding all or portion(s) of Section 19, T15S, R6W, SLB&M; Section 30, T15S, R6W, SLB&M; Section 22, T15S, R7W, SLB&M; Section 23, T15S, R7W, SLB&M; Section 24, T15S, R7W, SLB&M; Section 25, T15S, R7W, SLB&M; Section 26, T15S, R7W, SLB&M; and Section 27, T15S, R7W, SLB&M.

The application was not advertised.

1594 West North Temple, Suite 220, PO Box 146300, Salt Lake City, UT 84114-6300
telephone (801) 538-7240 • facsimile (801) 538-7467 • *www.waterrights.utah.gov*

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ORDER OF THE STATE ENGINEER
Temporary Change Application Number
68-396 (t37232)
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Review has been made of the proposed changes, the underlying right, and the protest. In order to approve this temporary change application without enlarging the underlying water rights the quantification limiting water right 68-2909 (a27062) to 172.43 acre-feet, as described in the approval memorandum for change application (a27062), must be continued. The quantified amounts for water right 68-396 is 0.893 cfs or 646.5 acre-feet and water right 68-2835 is 1.10 cfs or 179.56 acre-feet. Therefore, the total amount limited under these rights is: (172.43 acre-feet + 646.5 acre-feet + 179.56 acre-feet = 998.49 acre-feet).

In evaluating applications which propose to change the nature of use of a water right, the State Engineer believes it is appropriate to examine the rates and amounts of hydrologic depletion associated with the historical water use as compared to the proposed use to assure that there is no enlargement of the underlying water right. The hereafter irrigation and domestic uses were administratively assigned to Temporary Change Application t36003 (68-263) leaving only industrial uses to be evaluated under this application. In this case, it is believed that the historical water uses would have incurred the following rates and amounts of hydrologic depletion:

Prior Beneficial Use	Rate of Diversion	Amount of Diversion	*Rate of Depletion	Amount of Depletion
Municipal 12.5 acres	998.49acre-feet	998.49 acre-feet	100 percent	998.49 acre-feet

The rate and amount of hydrologic depletion associated with the proposed use is as follows:

Proposed Beneficial Use	Rate of Diversion	Amount of Diversion	*Rate of Depletion	Amount of Depletion
Industrial Use	998.49 acre-feet	998.49acre-feet	100 percent	998.49 acre-feet

**Consumptive Use of Irrigated Crops in Utah,* Research Report 145, Utah Agricultural Experiment Station, Utah State University, Logan, Utah, October 1994, Delta Station.

Based upon the above analysis, it appears that the proposed use will not exceed the hydrologic depletion limitations associated with the historical uses, thus causing an enlargement of the underlying water right.

It is the opinion of the State Engineer that this application can be approved without adversely affecting prior rights provided certain conditions are imposed. Therefore, the applicant is put on notice that diligence must be shown in pursuing the development of this application, which can be demonstrated by the completion of the project as approved in this order of the State Engineer. It is, therefore, **ORDERED** and Temporary Change Application Number 68-396 (t37232) is hereby **APPROVED** subject to prior rights and with the following conditions:

1) The amount of water diverted by the applicant from the wells shall be limited to 2.6305 cfs or 998.49 acre-feet annually to be used for

RECEIVED: November 04, 2011

ORDER OF THE STATE ENGINEER
Temporary Change Application Number
68-396 (t37232)
Page 3

industrial use. The depletion shall be limited to the historical depletion of 998.49 acre-feet.

2) To accommodate the use approved under this application, the historic municipal use shall cease.

3) Section 73-5-4 of the Utah Code provides that "every person using water in this state shall construct or install and maintain …controlling works…and measuring device at each point where water is diverted or turned out, for the purpose of regulating and measuring the quantity of water that may be used…" Adequate measuring and totalizing devices shall be installed on the heretofore and hereafter points of diversions. The applicant must maintain a record and prepare a report of the amount of water diverted from each diversion point. This annual report of water diverted shall be submitted to the State Engineer on or before December 31st of each operational year of the project. Failure to comply could result in an order to cease the use of water and/or the revocation of this approval.

4) **This application shall automatically expire December 31, 2011.**

It is the applicant's responsibility to maintain a current address with this office and to update ownership of their water right. Please notify this office immediately of any change of address or for assistance in updating ownership.

Your contact with this office, should you need it, is with the Sevier River/Southern Regional Office. The telephone number is 435-896-4429.

This Order is subject to the provisions of Administrative Rule R655-6-17 of the Division of Water Rights and to Sections 63G-4-302, 63G-4-402, and 73-3-14 of the Utah Code which provide for filing either a Request for Reconsideration with the State Engineer or an appeal with the appropriate District Court. A Request for Reconsideration must be filed with the State Engineer within 20 days of the date of this Order. However, a Request for Reconsideration is not a prerequisite to filing a court appeal. A court appeal must be filed within 30 days after the date of this Order, or if a Request for Reconsideration has been filed, within 30 days after the date the Request for Reconsideration is denied. A Request for Reconsideration is considered denied when no action is taken 20 days after the Request is filed.

Dated this 28 day of March, 2011.

Kirk Forbush

Kirk Forbush, P.E., Region Engineer

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API Well Number: 43027500030000

Application for Permit to Drill
Magnum Cavern Well 6

Blowout Preventer

11/04/2011
(revised 02/02/2012)

Prepared by:

Magnum
3165 E. Millrock Dr., Suite 330
Holladay, Utah 84121
Tel 801 993 7001 Fax 801 993 7025
www.westernenergyhub.com

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The geology of the area is known from the nearby Magnum MH-1 well and the Argonaut Well as well as the nearby industrial water wells. These wells demonstrate that the formations to be drilled above the salt, and the salt itself, are gas-free. The Argonaut Well penetrated the entire sequence of salt to a depth of 11,266 feet bgs and the Magnum MH-1 well penetrated the salt to a depth of 6,420 feet bgs. This is deeper than the intended Cavern Well 6 depth of 5,050 bgs. Additionally, the geophysical lines that run over the area show there are no structures present in the overlying formations that could trap gas. This is typical of the basin and range deposits that have been explored for hydrocarbon production.

Wells drilled into salt generally utilize some kind of blowout control equipment. The blowout control equipment almost always includes an annular, bag-type blowout preventer. Magnum will follow industry practice and use an annular blowout preventer (BOP) when drilling Cavern Well 6 (see **Blowout Preventer**). Additional equipment used in deep oil and gas wells, such as shear and pipe rams, will not be used for drilling Magnum's cavern well.

Magnum intends to install BOP measures beginning with the 30-inch surface casing at a depth of 750 feet and the BOP will be in place during the drilling for the 24- and 20-inch casings. The exact size of the BOP to be used will be at least 20-inches in diameter and rated at 5000 psi. Installation of the BOP measures are described in detail in Section 1.2 of the Drilling/Well Construction Plan and both the installation and testing process is summarized below.

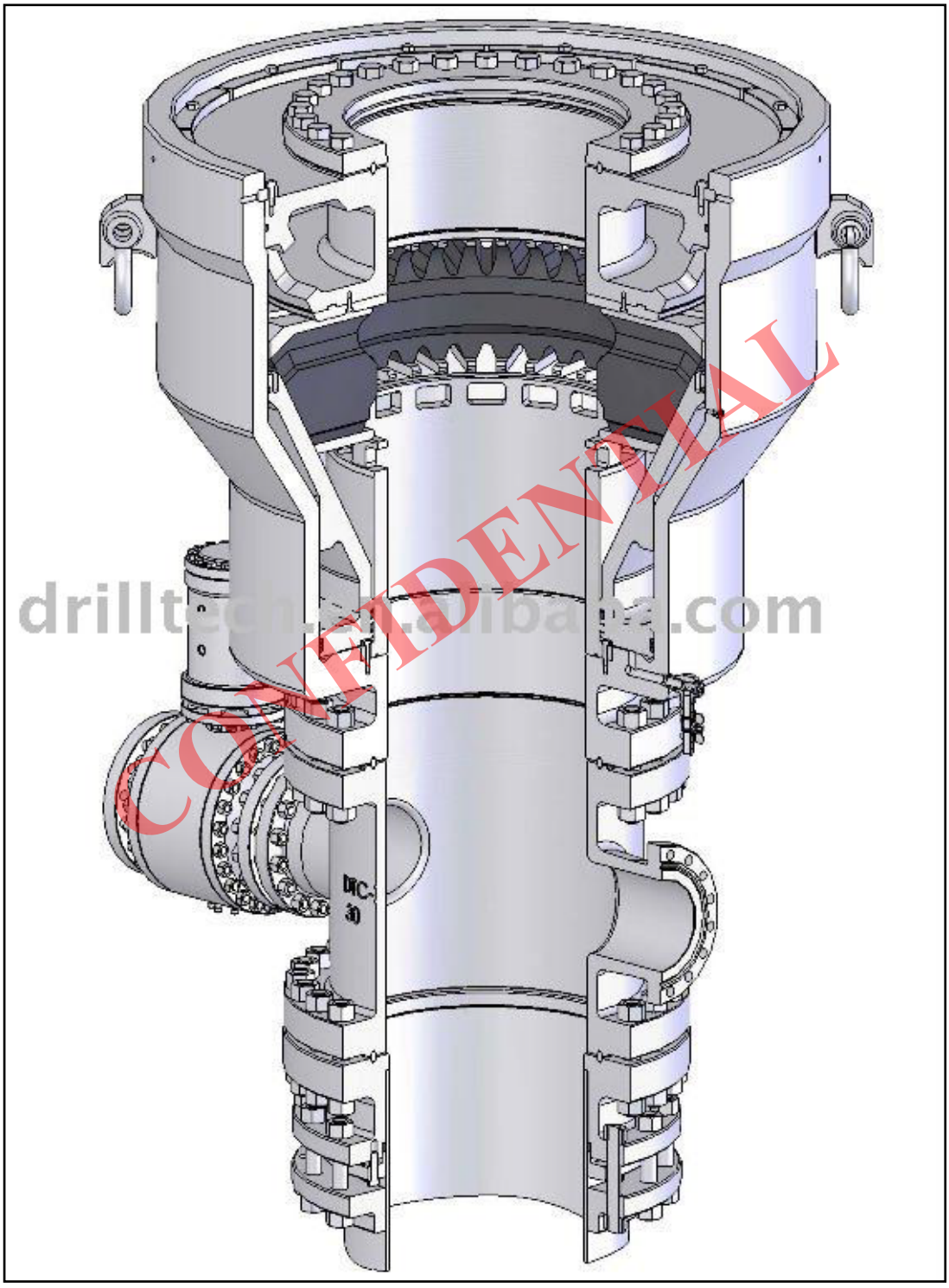
The BOP will be installed on the surface casing after it is cemented in place. The BOP will be installed on a temporary flange welded to a 20-inch reducer on the 30-inch casing. The size of the 16-inch cavern well requires that the bottom hole assembly be run into the well, the BOP equipment stripped over the drilling assembly, and the BOP re-installed on the surface casing. The BOP equipment must be stripped off and then put back over the drilling string whenever a bit change is required.

Once the BOP is installed, testing of the equipment will follow oil and gas industry standards. Functionality testing of the equipment is conducted every time it is installed. The BOP will be connected to the closing unit by high-pressure hydraulic hoses. A joint of drill pipe will be picked up by the rig and run into the BOP. The BOP will then be closed from the control unit and checked that the bag has sealed around the drill pipe. If the closing is visually correct, the BOP will be opened, the drill pipe removed and rig activities will continue.

Sources

https://www.drilltech.en.alibaba.com

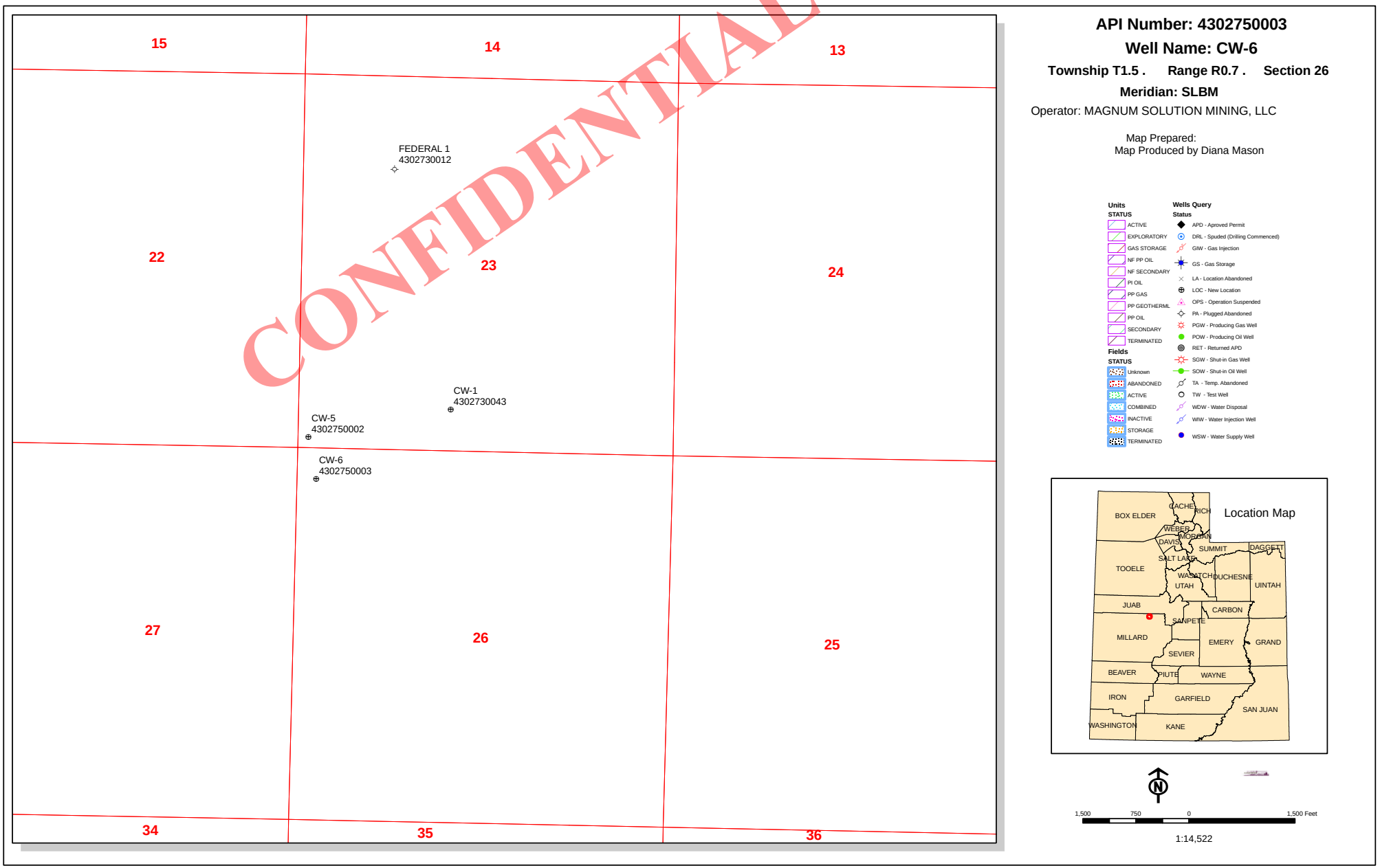
RECEIVED: November 02, 2011



Blowout Preventer
Magnum Cavern Well 6

RECEIVED: November 02, 2011

API Well Number: 43027500030000



API Well Number: 43027500030000

BOPE REVIEW MAGNUM SOLUTION MINING, LLC CW-6 43027500030000

Well Name	MAGNUM SOLUTION MINING, LLC CW-6 43027500030000			
String	COND	SURF	I1	I2
Casing Size(")	36.000	30.000	24.000	20.000
Setting Depth (TVD)	150	750	3400	3600
Previous Shoe Setting Depth (TVD)	0	150	750	3400
Max Mud Weight (ppg)	8.3	9.5	10.2	10.2
BOPE Proposed (psi)	0	0	5000	5000
Casing Internal Yield (psi)	1280	2270	3790	3950
Operators Max Anticipated Pressure (psi)	700			3.7

Calculations	**COND String**	**36.000**	"	
Max BHP (psi)	.052*Setting Depth*MW=	65		
			BOPE Adequate For Drilling And Setting Casing at Depth?	
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=	47	NO	
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=	32	NO	
			***Can Full Expected Pressure Be Held At Previous Shoe?**	
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=	32	NO	
Required Casing/BOPE Test Pressure=		0	psi	
***Max Pressure Allowed @ Previous Casing Shoe=**		0	psi	*Assumes 1psi/ft frac gradient

Calculations	**SURF String**	**30.000**	"	
Max BHP (psi)	.052*Setting Depth*MW=	371		
			BOPE Adequate For Drilling And Setting Casing at Depth?	
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=	281	NO	
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=	206	NO	OK
			***Can Full Expected Pressure Be Held At Previous Shoe?**	
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=	239	NO	OK
Required Casing/BOPE Test Pressure=		750	psi	
***Max Pressure Allowed @ Previous Casing Shoe=**		150	psi	*Assumes 1psi/ft frac gradient

Calculations	**I1 String**	**24.000**	"	
Max BHP (psi)	.052*Setting Depth*MW=	1803		
			BOPE Adequate For Drilling And Setting Casing at Depth?	
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=	1395	YES	
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=	1055	YES	OK
			***Can Full Expected Pressure Be Held At Previous Shoe?**	
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=	1220	NO	OK
Required Casing/BOPE Test Pressure=		2653	psi	
***Max Pressure Allowed @ Previous Casing Shoe=**		750	psi	*Assumes 1psi/ft frac gradient

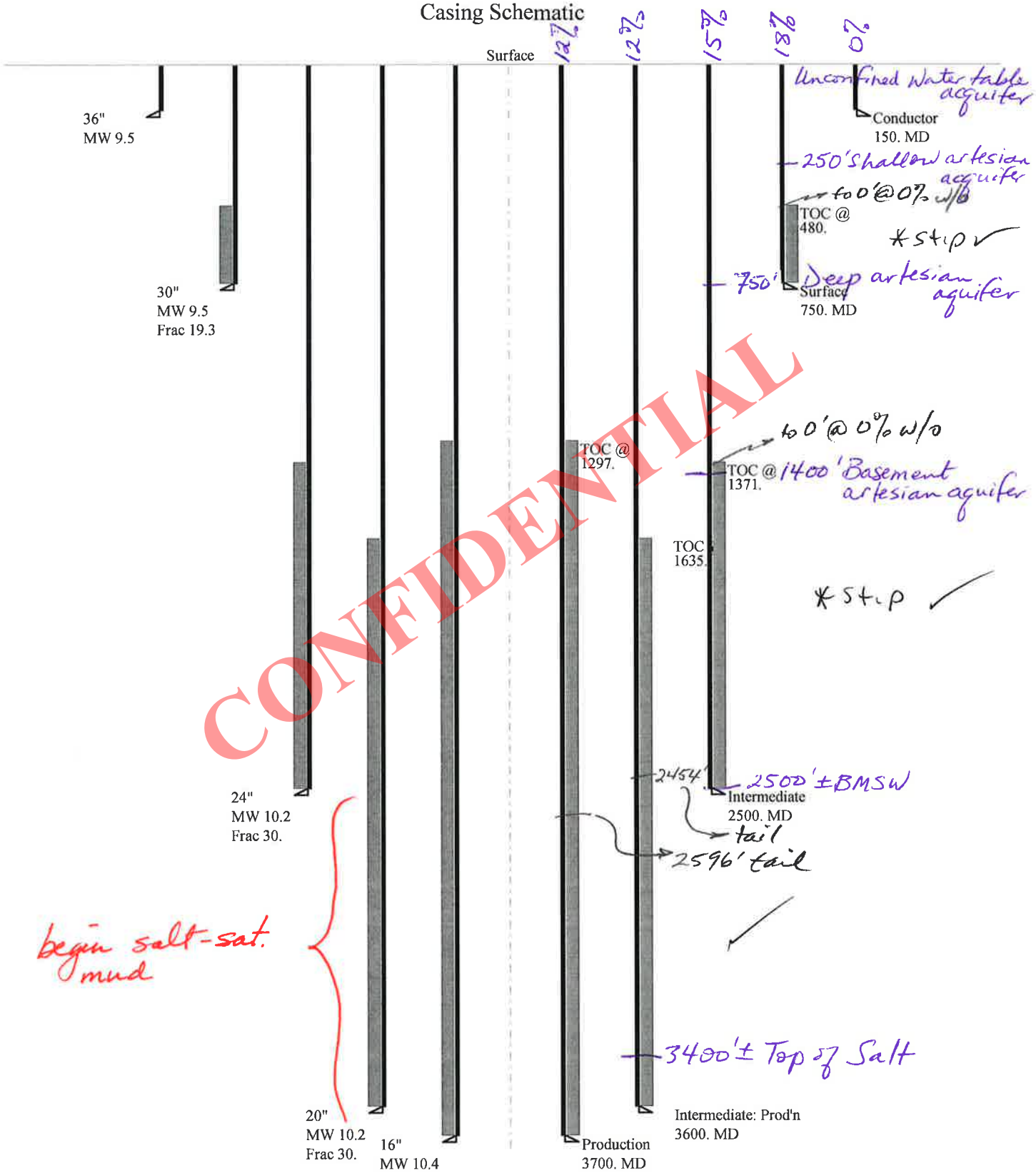
Calculations	**I2 String**	**20.000**	"	
Max BHP (psi)	.052*Setting Depth*MW=	1909		
			BOPE Adequate For Drilling And Setting Casing at Depth?	
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=	1477	YES	
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=	1117	YES	OK
			***Can Full Expected Pressure Be Held At Previous Shoe?**	
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=	1865	YES	OK
Required Casing/BOPE Test Pressure=		2765	psi	
***Max Pressure Allowed @ Previous Casing Shoe=**		3400	psi	*Assumes 1psi/ft frac gradient

RECEIVED: February 28, 2012

API Well Number: 43027500030000

43027500030000 CW-6

Casing Schematic



API Well Number: 43027500030000

Well name:	**43027500030000 CW-6**
Operator:	**Magnum Solution Mining, LLC**
String type:	Conductor
Project ID:	43-027-50003
Location:	MILLARD COUNTY

Design parameters:

Collapse
Mud weight: 9.500 ppg
Design is based on evacuated pipe.

Burst
Max anticipated surface pressure: 56 psi
Internal gradient: 0.120 psi/ft
Calculated BHP 74 psi

No backup mud specified.

Minimum design factors:

Collapse:
Design factor 1.125

Burst:
Design factor 1.00

Tension:
8 Round STC: 1.80 (J)
8 Round LTC: 1.70 (J)
Buttress: 1.60 (J)
Premium: 1.50 (J)
Body yield: 1.50 (B)

Tension is based on air weight.
Neutral point: 128 ft

Environment:
H2S considered? No
Surface temperature: 74 °F
Bottom hole temperature: 76 °F
Temperature gradient: 1.40 °F/100ft
Minimum section length: 12 ft

Non-directional string.

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Est. Cost ($)
1	150	36	282.39	A-53 B	Plain End	150	150	33	19800

Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (kips)	Tension Strength (kips)	Tension Design Factor
1	74	440	5.944	74	1280	17.29	42.4	2907	68.63 B

Prepared by: Helen Sadik-Macdonald
Div of Oil,Gas & Mining
Phone: 801 538-5357
FAX: 801-359-3940
Date: January 30,2012
Salt Lake City, Utah

Remarks:
Collapse is based on a vertical depth of 150 ft, a mud weight of 9.5 ppg The casing is considered to be evacuated for collapse purposes.
Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Engineering responsibility for use of this design will be that of the purchaser.

API Well Number: 43027500030000

Well name:	**43027500030000 CW-6**		
Operator:	**Magnum Solution Mining, LLC**		
String type:	Surface	Project ID:	43-027-50003
Location:	MILLARD COUNTY		

Design parameters:

Collapse
Mud weight: 9.500 ppg
Design is based on evacuated pipe.

Burst
Max anticipated surface pressure: 660 psi
Internal gradient: 0.120 psi/ft
Calculated BHP 750 psi

No backup mud specified.

Minimum design factors:

Collapse:
Design factor 1.125

Burst:
Design factor 1.00

Tension:
8 Round STC: 1.80 (J)
8 Round LTC: 1.70 (J)
Buttress: 1.60 (J)
Premium: 1.50 (J)
Body yield: 1.50 (B)

Tension is based on air weight.
Neutral point: 641 ft

Environment:
H2S considered? No
Surface temperature: 74 °F
Bottom hole temperature: 84 °F
Temperature gradient: 1.40 °F/100ft
Minimum section length: 12 ft

Cement top: 480 ft

Non-directional string.

Re subsequent strings:
Next setting depth: 3,400 ft
Next mud weight: 10.200 ppg
Next setting BHP: 1,802 psi
Fracture mud wt: 19.250 ppg
Fracture depth: 750 ft
Injection pressure: 750 psi

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Est. Cost ($)
1	750	30	234.29	X-52	Plain End	750	750	28.1	69300

Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (kips)	Tension Strength (kips)	Tension Design Factor
1	370	770	2.080	750	2270	3.03	175.7	3583.8	20.40 B

Prepared by: Helen Sadik-Macdonald
Div of Oil,Gas & Mining
Phone: 801 538-5357
FAX: 801-359-3940
Date: January 30,2012
Salt Lake City, Utah

Remarks:
Collapse is based on a vertical depth of 750 ft, a mud weight of 9.5 ppg The casing is considered to be evacuated for collapse purposes.
Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Engineering responsibility for use of this design will be that of the purchaser.

API Well Number: 43027500030000

Well name:	**43027500030000 CW-6**
Operator:	**Magnum Solution Mining, LLC**
String type:	Intermediate
Project ID:	43-027-50003
Location:	MILLARD COUNTY

Design parameters:

Collapse

Mud weight: 10.200 ppg
Design is based on evacuated pipe.

Burst

Max anticipated surface pressure: 1,116 psi
Internal gradient: 0.220 psi/ft
Calculated BHP 1,666 psi

No backup mud specified.

Minimum design factors:

Collapse:

Design factor 1.125

Burst:

Design factor 1.00

Tension:

8 Round STC: 1.80 (J)
8 Round LTC: 1.80 (J)
Buttress: 1.60 (J)
Premium: 1.50 (J)
Body yield: 1.60 (B)

Tension is based on air weight.
Neutral point: 2,110 ft

Environment:

H2S considered? No
Surface temperature: 74 °F
Bottom hole temperature: 109 °F
Temperature gradient: 1.40 °F/100ft
Minimum section length: 1,000 ft

Cement top: 1,371 ft

Non-directional string.

Re subsequent strings:

Next setting depth: 3,600 ft
Next mud weight: 10.200 ppg
Next setting BHP: 1,908 psi
Fracture mud wt: 30.000 ppg
Fracture depth: 2,500 ft
Injection pressure: 3,896 psi

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Est. Cost ($)
1	2500	24	245.64	X-52	Plain End	2500	2500	21.6	165000

Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (kips)	Tension Strength (kips)	Tension Design Factor
1	1325	2430	1.834	1666	3790	2.28	614.1	3757.3	6.12 B

Prepared by: Helen Sadik-Macdonald
Div of Oil,Gas & Mining
Phone: 801 538-5357
FAX: 801-359-3940
Date: February 28,2012
Salt Lake City, Utah

Remarks:
Collapse is based on a vertical depth of 2500 ft, a mud weight of 10.2 ppg The casing is considered to be evacuated for collapse purposes. Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Engineering responsibility for use of this design will be that of the purchaser.

API Well Number: 43027500030000

Well name:	**43027500030000 CW-6**
Operator:	**Magnum Solution Mining, LLC**
String type:	Intermediate: Prod'n
Project ID:	43-027-50003
Location:	MILLARD COUNTY

Design parameters:

Collapse
Mud weight: 10.200 ppg
Design is based on evacuated pipe.

Burst
Max anticipated surface pressure: 1,185 psi
Internal gradient: 0.220 psi/ft
Calculated BHP 1,977 psi

No backup mud specified.

Minimum design factors:

Collapse:
Design factor 1.125

Burst:
Design factor 1.00

Tension:
8 Round STC: 1.80 (J)
8 Round LTC: 1.80 (J)
Buttress: 1.60 (J)
Premium: 1.50 (J)
Body yield: 1.60 (B)

Tension is based on air weight.
Neutral point: 3,096 ft

Estimated cost: 176,260 ($)

Environment:
H2S considered? No
Surface temperature: 74 °F
Bottom hole temperature: 124 °F
Temperature gradient: 1.40 °F/100ft
Minimum section length: 1,000 ft

Cement top: 1,635 ft

Non-directional string.

Production liner info:
Liner setting depth: 3,700 ft
Pore pressure equivale 10.400 ppg
Assumed BHP at TD: 1,999 psi

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Est. Cost ($)
2	1500	20	133.00	N-80	Buttress	1500	1500	18.542	71894
1	2100	20	169.00	X-56	BOSS	3600	3600	18.188	104366

Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (kips)	Tension Strength (kips)	Tension Design Factor
2	795	1543	1.941	1515	4450	2.94	554.4	2877	5.19 J
1	1908	2510	1.316	1977	3910	1.98	354.9	2653	7.48 J

Prepared by: Helen Sadik-Macdonald
Div of Oil,Gas & Mining
Phone: 801 538-5357
FAX: 801-359-3940
Date: January 30,2012
Salt Lake City, Utah

Remarks:
Collapse is based on a vertical depth of 3600 ft, a mud weight of 10.2 ppg The casing is considered to be evacuated for collapse purposes.
Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Engineering responsibility for use of this design will be that of the purchaser.

API Well Number: 43027500030000

Well name:	**43027500030000 CW-6**
Operator:	**Magnum Solution Mining, LLC**
String type:	Production
Project ID:	43-027-50003
Location:	MILLARD COUNTY

Design parameters:

Collapse
Mud weight: 10.400 ppg
Design is based on evacuated pipe.

Burst
Max anticipated surface pressure: 1,185 psi
Internal gradient: 0.220 psi/ft
Calculated BHP 1,999 psi

No backup mud specified.

Minimum design factors:

Collapse:
Design factor 1.125

Burst:
Design factor 1.00

Tension:
8 Round STC: 1.80 (J)
8 Round LTC: 1.80 (J)
Buttress: 1.60 (J)
Premium: 1.50 (J)
Body yield: 1.60 (B)

Tension is based on air weight.
Neutral point: 3,181 ft

Estimated cost: 149,383 ($)

Environment:
H2S considered? No
Surface temperature: 74 °F
Bottom hole temperature: 126 °F
Temperature gradient: 1.40 °F/100ft
Minimum section length: 100 ft

Cement top: 1,297 ft

Non-directional string.

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Est. Cost ($)
2	2000	16	95.00	N-80	Buttress	2000	2000	14.75	68666
1	1700	16	118.00	L-80	Big Omega	3700	3700	14.341	80717

Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (kips)	Tension Strength (kips)	Tension Design Factor
2	1081	2120	1.962	1625	4950	3.05	390.6	2161	5.53 J
1	1999	3680	1.841	1999	6260	3.13	200.6	2650	13.21 J

Prepared by: Helen Sadik-Macdonald
Div of Oil,Gas & Mining
Phone: 801 538-5357
FAX: 801-359-3940
Date: January 30,2012
Salt Lake City, Utah

Remarks:
Collapse is based on a vertical depth of 3700 ft, a mud weight of 10.4 ppg The casing is considered to be evacuated for collapse purposes.
Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Engineering responsibility for use of this design will be that of the purchaser.

Diana Mason <dianawhitney@utah.gov>

Magnum CW-5 and CW-6 Approval

Jim Davis <jimdavis1@utah.gov> Thu, May 2, 2013 at 12:08 PM
To: Brad Hill <BRADHILL@utah.gov>, Diana Mason <dianawhitney@utah.gov>, Ted Smith <TEDSMITH@utah.gov>
Cc: Lavonne Garrison <LAVONNEGARRISON@utah.gov>, Tiffany James <tiffanyjames@westernenergyhub.com>, "Quigley, Sam" <squigley@westernenergyhub.com>, Ed Bonner <EDBONNER@utah.gov>, Jeff Conley <jconley@utah.gov>

Please accept this email as SITLA's approval of the proposed Magnum wells CW-5 (4302750002) and CW-6 (4302750003).

There is an arch site adjacent to the CW-5 well's area (Site number 42Md3310). Magnum has committed to fence the site, avoid it and to have an arch monitor on-site during ground-disturbing activities.

SITLA has received bonds from Magnum to cover CW-5, CW-6, the brine ponds and other interim reclamation within the lease area.

This is all well and satisfactory to SITLA. Thanks.

-Jim

--
jimdavis1@utah.gov
(801) 538-5156

ON-SITE PREDRILL EVALUATION
Utah Division of Oil, Gas and Mining

Operator MAGNUM SOLUTION MINING, LLC
Well Name CW-6
API Number 43027500030000 **APD No** 4849 **Field/Unit** WILDCAT
Location: 1/4,1/4 NWNW **Sec** 26 **Tw** 15.0S **Rng** 7.0W 442 FNL 284 FWL
GPS Coord (UTM) 361465 4372738 **Surface Owner**

Participants

Ted Smith, Ammon McDonald-DOGM, Sam Quigley, David Babcock-Magnum

Regional/Local Setting & Topography

Sevier Desert valley with a few cultivated hay fields and grazing land. This valley sits between the Canyon Mountains and Sevier River to the east and the Drum Mountains to the west. Surrounding area is dry grazing land with a few cultivated fields needing water continuously. The Intermountain Power Plant is 0.75 miles to the northeast. Area of proposed pad basically flat and dry with a 3-6 foot drop on the west side of the proposed pad. Proposed location is approximately 10 miles north of the town of Delta. Altitude at site approximately 4606'-4612'.

Surface Use Plan

Current Surface Use
Grazing
Wildlfe Habitat

New Road Miles	Well Pad	Src Const Material	Surface Formation
0.07	**Width** 300 **Length** 290	Onsite	ALLU

Ancillary Facilities N

None with exception of trailers to be on location during drilling operations. Future opereration plans for 3 more wells being drilled close to proposed well. Operations facility will be built at a later date along with dehydration compression facility.

Waste Management Plan Adequate? Y

Environmental Parameters

Affected Floodplains and/or Wetlands N

Flora / Fauna

Flora around the drill location area consist of - Greasewood, salt brushand Winter Fat.

Fauna around the drill location area consist of - Coyote, Cattle, and Rabbit.

Soil Type and Characteristics

Alluvium valley fill with soil crusts on surface such as mosses and lichens

Erosion Issues N

Sedimentation Issues N

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Site Stability Issues N

Drainage Diverson Required? N

Berm Required? N

Erosion Sedimentation Control Required? N

Paleo Survey Run? N **Paleo Potental Observed?** N **Cultural Survey Run?** Y **Cultural Resources?** N

Reserve Pit

Site-Specific Factors		Site Ranking
Distance to Groundwater (feet)	75 to 100	10
Distance to Surface Water (feet)	300 to 1000	2
Dist. Nearest Municipal Well (ft)	1320 to 5280	5
Distance to Other Wells (feet)		20
Native Soil Type	Mod permeability	10
Fluid Type	Fresh Water	5
Drill Cuttings	Salt or Detrimental	10
Annual Precipitation (inches)		0
Affected Populations		
Presence Nearby Utility Conduits		
	Final Score	62 3 Sensitivity Level

Characteristics / Requirements

Reserve pit will be constructed so as not to leak, break, or discharge. The reserve pit will be lined with minimum of 20 mil plastic liner with felt placed between the ground and liner as a request from SITLA.
Pit will be 100' x 150' x 12' in size. The reserve pit will be fenced once it has been lined. The pit location is located approximately 400 feet northwest of Magnum Solutions water well.

Closed Loop Mud Required? N **Liner Required?** Y **Liner Thickness** 20 **Pit Underlayment Required?** Y

Other Observations / Comments

Magnum Solutions Mining, LLC. will use a open lined pit program. All pit fluids will be hauled to an approved disposal site for waste management once well is completed. Fresh water source will be from Magnum's MH-1 well located 400 feet northwest of location. Access road will be using State HWY # 174 to Millard County Road called the Jones Road then continues on through landowners (SITLA) property for 0.07 mile on to new access road to API #4302750003. Millard county has issued Magnum a conditional use permit for use of their road. There are two large over head power lines located south of State HWY 174 and 0.5 miles to the north of proposed location. One power line is 230 mega watt AC current and one power line is 500 mega watt DC. The Intermountain Power Project 1900 mega watt power plant is located north of State HWY 174 and approximately 0.75 mile north of proposed location. There is two occupied houses 0.75 northeast of location. There are 9 water wells within 1 mile of location. The closest being Magnum's MH-1 well at 400 feetnorthwest The Sevier River is located approximately 10 miles

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east from proposed location. There is one PA well API 4302730012 within one mile of proposed well. The operator Magnum Solutions Mining, LLC having leased the property from SITLA using lease #51573-OBA. There currently is one grazing lease issued by SITLA for this area. SITLA personnel were invited to attend preiste but elected not to attend. There is no local disagreement by local landowners with this drilling program. Rig lights and noise may be seen and herd in the town of Delta 10 miles south of location. Photos are located in well file.

Ted Smith	12/13/2011
Evaluator	**Date / Time**

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Application for Permit to Drill
Statement of Basis
Utah Division of Oil, Gas and Mining

APD No	API WellNo	Status	Well Type	Surf Owner	CBM
4849	43027500030000	LOCKED	GS	S	No
Operator	MAGNUM SOLUTION MINING, LLC		**Surface Owner-APD**		
Well Name	CW-6		**Unit**		
Field	WILDCAT		**Type of Work**	DRILL	
Location	NWNW 26 15S 7W S 442 FNL 284 FWL GPS Coord (UTM) 361468E 4372741N				

Geologic Statement of Basis

The proposed well location is in western Utah within the Basin and Range physiographic province. The mountains that bound the valley are composed of various sedimentary, metamorphic, and igneous rocks and the valley-fill is composed of sands, silts, and gravels. These Tertiary and Quaternary aged valley deposits are over 7,000’ thick. Oligocene and Miocene evaporite deposits have flowed over time to form a large salt dome, which is the drilling target.

Magnum has proposed 150’ of conductor pipe, 750’ of surface casing and a 2,500' intermediate casing for this well. The holes for all three strings will be drilled with fresh water mud and will be cemented back to the ground surface. A search of the Division of Water Rights database indicates that there are over 25 water wells within a 10,000' radius of the proposed location. These wells range in depth from 55' to 940'. Most of these wells are used for source water for Magnum's project and the Intermountain Power Plant. Four wells near the outside of the radius and directly south are used for a combination of irrigation, stock watering and irrigation. Magnum drilled several test wells during the initial phase of this project. These wells provided data to define the ground water quality at depth for the proposed well. This data indicates that ground water quality begins to diminish below 2,500' and becomes saline near 3,000'. The proposed casing and cement program should adequately protect usable ground water in this area.

Ammon McDonald	1/18/2012
APD Evaluator	**Date / Time**

Surface Statement of Basis

A presite was conducted at 10:00 am December 13, 2011. This area is easily accessed off State Highway 174. Operator will be required to construct a access road 0.07 mile onto property they have leased from SITLA. There is a USGS section corner marker located on the southern end of the reserve pit. This marker will need to be moved according to USGS regulations be fore the reserve pit is constructed.

The proposed CW-5 pad runs north to south direction and is located in the Sevier Desert valley . The construction material needed for this location and access road will be obtained from a local Delta gravel pit. The pad is located on a slight slope to the west. The reserve pit will be located 100' northeast of Magnum Solutions water well.

The landowner SITLA has requested that the reserve pit be lined with a 20 ml thick liner and a subliner placed between the ground and liner..

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The selected location for this well is suitable for drilling.

Ted Smith	12/13/2011
Onsite Evaluator	**Date / Time**

Conditions of Approval / Application for Permit to Drill

Category	Condition
Pits	A synthetic liner with a minimum thickness of 20 mils with a felt subliner shall be properly installed and maintained in the reserve pit.
Surface	The reserve pit shall be fenced upon completion of drilling operations.

RECEIVED: May 02, 2013

API Well Number: 43027500030000

WORKSHEET
APPLICATION FOR PERMIT TO DRILL

APD RECEIVED: 11/4/2011 **API NO. ASSIGNED:** 43027500030000

WELL NAME: CW-6

OPERATOR: MAGNUM SOLUTION MINING, LLC (N3995) **PHONE NUMBER:** 801 993-7001

CONTACT: Tiffany A. James

PROPOSED LOCATION: NWNW 26 150S 070W **Permit Tech Review:** ✔

SURFACE: 0442 FNL 0284 FWL **Engineering Review:** ✔

BOTTOM: 0442 FNL 0284 FWL **Geology Review:** ✔

COUNTY: MILLARD

LATITUDE: 39.49313 **LONGITUDE:** -112.61103

UTM SURF EASTINGS: 361468.00 **NORTHINGS:** 4372741.00

FIELD NAME: WILDCAT

LEASE TYPE: 3 - State

LEASE NUMBER: 51573-OBA **PROPOSED PRODUCING FORMATION(S):** SALT

SURFACE OWNER: 3 - State **COALBED METHANE:** NO

RECEIVED AND/OR REVIEWED:

- ✔ **PLAT**
- ✔ **Bond:** STATE/FEE - B008000
- ☐ **Potash**
- ☐ **Oil Shale 190-5**
- ☐ **Oil Shale 190-3**
- ☐ **Oil Shale 190-13**
- ✔ **Water Permit:** 68-396
- ✔ **RDCC Review:** 2013-05-02 00:00:00.0
- ☐ **Fee Surface Agreement**
- ☐ **Intent to Commingle**

Commingling Approved

LOCATION AND SITING:

- ☐ **R649-2-3.**

Unit:

- ☐ **R649-3-2. General**
- ✔ **R649-3-3. Exception**
- ✔ **Drilling Unit**

Board Cause No: R649-3-3

Effective Date:

Siting:

- ☐ **R649-3-11. Directional Drill**

Comments: Presite Completed
OP FM N3715

Stipulations: 1 - Exception Location - dmason
5 - Statement of Basis - bhill
8 - Cement to Surface -- 2 strings - ddoucet
21 - RDCC - dmason

RECEIVED: May 02, 2013

GARY R. HERBERT
Governor
GREGORY S. BELL
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES
MICHAEL R. STYLER
Executive Director
Division of Oil, Gas and Mining
JOHN R. BAZA
Division Director

Permit To Drill
****

Well Name: CW-6
API Well Number: 43027500030000
Lease Number: 51573-OBA
Surface Owner: STATE
Approval Date: 5/2/2013

Issued to:
MAGNUM SOLUTION MINING, LLC, 3165 E Millrock Dr, Holladay, UT 84124

Authority:
Pursuant to Utah Code Ann. 40-6-1 et seq., and Utah Administrative Code R649-3-1 et seq., the Utah Division of Oil, Gas and Mining issues conditions of approval, and permit to drill the listed well. This permit is issued in accordance with the requirements of R649-3-3. The expected producing formation or pool is the SALT Formation(s), completion into any other zones will require filing a Sundry Notice (Form 9). Completion and commingling of more than one pool will require approval in accordance with R649-3-22.

Duration:
This approval shall expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date

Exception Location:
Appropriate information has been submitted to DOGM and administrative approval of the requested exception location is hereby granted.

General:
Compliance with the requirements of Utah Admin. R. 649-1 et seq., the Oil and Gas Conservation General Rules, and the applicable terms and provisions of the approved Application for permit to drill.

Conditions of Approval:
The Application for Permit to Drill has been forwarded to the Resource Development Coordinating Committee for review of this action. The operator will be required to comply with any applicable recommendations resulting from this review. (See attached)

Compliance with the Conditions of Approval/Application for Permit to Drill outlined in the Statement of Basis (copy attached).

Cement volumes for the 30 "and 24" casing strings shall be determined from actual hole diameters in order to place cement from the pipe setting depths back to the surface.

Additional Approvals:
The operator is required to obtain approval from the Division of Oil, Gas and mining before performing any of the following actions during the drilling of this well:

- Any changes to the approved drilling plan - contact Dustin Doucet
- Significant plug back of the well - contact Dustin Doucet
- Plug and abandonment of the well - contact Dustin Doucet

Notification Requirements:
The operator is required to notify the Division of Oil, Gas and Mining of the following actions during drilling of this well:

- Within 24 hours following the spudding of the well - contact Carol Daniels
  OR
  submit an electronic sundry notice (pre-registration required) via the Utah Oil & Gas website
  at http://oilgas.ogm.utah.gov
- 24 hours prior to testing blowout prevention equipment - contact Dan Jarvis
- 24 hours prior to cementing or testing casing - contact Dan Jarvis
- Within 24 hours of making any emergency changes to the approved drilling program
  - contact Dustin Doucet
- 24 hours prior to commencing operations to plug and abandon the well - contact Dan Jarvis

Contact Information:
The following are Division of Oil, Gas and Mining contacts and their telephone numbers (please leave a voicemail message if the person is not available to take the call):

- Carol Daniels 801-538-5284 - office
- Dustin Doucet 801-538-5281 - office
  801-733-0983 - after office hours
- Dan Jarvis 801-538-5338 - office
  801-231-8956 - after office hours

Reporting Requirements:
All reports, forms and submittals as required by the Utah Oil and Gas Conservation General Rules will be promptly filed with the Division of Oil, Gas and Mining, including but not limited to:

- Entity Action Form (Form 6) - due within 5 days of spudding the well
- Monthly Status Report (Form 9) - due by 5th day of the following calendar month
- Requests to Change Plans (Form 9) - due prior to implementation
- Written Notice of Emergency Changes (Form 9) - due within 5 days
- Notice of Operations Suspension or Resumption (Form 9) - due prior to implementation
- Report of Water Encountered (Form 7) - due within 30 days after completion
- Well Completion Report (Form 8) - due within 30 days after completion or plugging

Approved By:

Approved By:

For John Rogers
Associate Director, Oil & Gas

Division of Oil, Gas and Mining

OPERATOR CHANGE WORKSHEET (for state use only)

ROUTING
CDW

X - Change of Operator (Well Sold) Operator Name Change/Merger

The operator of the well(s) listed below has changed, effective: **5/6/2013**

FROM: (Old Operator):	**TO:** (New Operator):
N3715- Magnum Solution Mining, LLC	N3995- Magnum NGLs Solutions Mining, LLC
3165 E Millrock Dr	3165 E. Millrock Dr, Suite 330
Holladay, UT, 84124	Holladay, UT, 84121
Phone: 1 (801) 993-7001	Phone: 1 (801) 993-7001

CA No. **Unit:**

WELL NAME	SEC	TWN	RNG	API NO	ENTITY NO	LEASE TYPE	WELL TYPE	WELL STATUS
CW-5	23	150S	070W	4302750002	19046	State	GS	DRL
CW-6	26	150S	070W	4302750003		State	GS	APD

OPERATOR CHANGES DOCUMENTATION

Enter date after each listed item is completed

1. (R649-8-10) Sundry or legal documentation was received from the **FORMER** operator on: 5/28/2013
2. (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 5/28/2013
3. The new company was checked on the **Department of Commerce, Division of Corporations Database on:** 6/12/2013
4a. Is the new operator registered in the State of Utah: _____ Business Number: 8615504-0160
5a. (R649-9-2)Waste Management Plan has been received on: Not Yet
5b. Inspections of LA PA state/fee well sites complete on: N/A
5c. Reports current for Production/Disposition & Sundries on: N/A
6. **Federal and Indian Lease Wells:** The BLM and or the BIA has approved the merger, name change, or operator change for all wells listed on Federal or Indian leases on: BLM N/A BIA N/A
7. **Federal and Indian Units:**
   The BLM or BIA has approved the successor of unit operator for wells listed on: N/A
8. **Federal and Indian Communization Agreements ("CA"):**
   The BLM or BIA has approved the operator for all wells listed within a CA on: N/A
9. **Underground Injection Control ("UIC")** Division has approved UIC Form 5 Transfer of Authority to **Inject,** for the enhanced/secondary recovery unit/project for the water disposal well(s) listed on: N/A

DATA ENTRY:

1. Changes entered in the **Oil and Gas Database on:** 6/12/2013
2. Changes have been entered on the **Monthly Operator Change Spread Sheet on:** 6/12/2013
3. Bond information entered in RBDMS on: 5/3/2013
4. Fee/State wells attached to bond in RBDMS on: 5/3/2013
5. Injection Projects to new operator in RBDMS on: N/A
6. Receipt of Acceptance of Drilling Procedures for APD/New on: 6/12/2013

BOND VERIFICATION:

1. Federal well(s) covered by Bond Number: N/A
2. Indian well(s) covered by Bond Number: N/A
3a. (R649-3-1) The **NEW** operator of any state/fee well(s) listed covered by Bond Number see Comments
3b. The **FORMER** operator has requested a release of liability from their bond on: N/A

LEASE INTEREST OWNER NOTIFICATION:

4. (R649-2-10) The **NEW** operator of the fee wells has been contacted and informed by a letter from the Division of their responsibility to notify all interest owners of this change on: N/A

COMMENTS:

4302750002 CW-5, bond number B008001
4302750003 CW-6, bond number B008000

APPROVED

JUN 1 2 2013

DIV. OIL GAS & MINING

BY: Zeke Clement for Rachel Medina

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 5

DESIGNATION OF AGENT OR OPERATOR

The undersigned is, on record, the holder of oil and gas lease

RECEIVED
MAY 2 8 2013
DIV OF OIL GAS & MINING

LEASE NAME: Magnum Holdings, LLC

LEASE NUMBER: 51573-OBA

and hereby designates

NAME: Magnum NGLs Solution Mining, LLC N3995

ADDRESS: 3165 East Millrock Drive, Suite 330

city Holladay state UT zip 84121

as his (check one) agent ☐ / operator ☒, with full authority to act in his behalf in complying with the terms of the lease and regulations applicable thereto and on whom the Division Director or Authorized Agent may serve written or oral instructions in securing compliance with the Oil and Gas Conservation General Rules and Procedural Rules of the Board of Oil, Gas and Mining of the State of Utah with respect to:

(Describe acreage to which this designation is applicable. Identify each oil and gas well by API number and name. Attach additional pages as needed.)

This designation is applicable to the drilling and operation of APD No. 4838 and APD No. 4849 and within the area described as follows: Beginning at the Northwest corner of Section 26, Township 15 South, Range 7 West, Salt Lake Meridian; thence North 89°49'12" West 317.56 feet along section line; thence North 00° 47' 08" West 83.32 feet; thence North 89° 12' 52" East 186.88 feet; thence North 00° 47' 08" West 937.71 feet; thence South 49° 28' 21" East 196.67 feet to a point on section line; thence continuing South 49° 28' 21" East 1393.33 feet to a point on section line; thence continuing South 49° 28' 21" East 948.07 feet; thence South 00° 59' 16" East 300.00 feet; thence South 89° 00' 44" West 1799.61 feet to a point on section line; thence North 00° 34' 52" East 955.81 feet along section line to the POINT OF BEGINNING. Contains 2,077,386 square feet or 47.690 acres, more or less.

It is understood that this designation of agent/operator does not relieve the lessee of responsibility for compliance with the terms of the lease and the Oil and Gas Conservation General Rules and Procedural Rules of the Board of Oil, Gas and Mining of the State of Utah. It is also understood that this designation of agent or operator does not constitute an assignment of any interest in the lease.

In case of default on the part of the designated agent/operator, the lessee will make full and prompt compliance with all rules, lease terms or orders of the Board of Oil, Gas and Mining of the State of Utah or its authorized representative.

The lessee agrees to promptly notify the Division Director or Authorized Agent of any change in this designation.

Effective Date of Designation: 05/06/2013

BY: (Name) Robert Webster

(Signature) [signature]

(Title) Chief Operating Officer

(Phone) (801) 993-7001

OF: (Company) Magnum Holdings, LLC

(Address) 3165 East Millrock Drive, Suite 330

city Holladay

state UT zip 84121

(5/2000)

APPROVED

JUN 12 2013

DIV. OIL GAS & MINING

BY: Zeke Clunt For Rachel Medina

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

RECEIVED
JUN 12 2013
Div. of Oil, Gas & Mining

Request to Transfer Application or Permit to Drill

(This form should accompany a Sundry Notice, Form 9, requesting APD transfer)

Well name:	CW-5
API number:	43027500020000
Location:	Qtr Qtr SWSW Section 23 Township 15S Range 7W
Company that filed original application:	Magnum Solution Mining, LLC N3715
Date original permit was issued:	05/02/2013
Company that permit was issued to:	Magnum Solution Mining, LLC

Check one	Desired Action:
	Transfer pending (unapproved) Application for Permit to Drill to new operator
	The undersigned as owner with legal rights to drill on the property, hereby verifies that the information as submitted in the pending Application for Permit to Drill, remains valid and does not require revision. The new owner of the application accepts and agrees to the information and procedures as stated in the application.
✓	**Transfer approved Application for Permit to Drill to new operator**
	The undersigned as owner with legal rights to drill on the property as permitted, hereby verifies that the information as submitted in the previously approved application to drill, remains valid and does not require revision.

Following is a checklist of some items related to the application, which should be verified.	Yes	No
If located on private land, has the ownership changed?		✓
If so, has the surface agreement been updated?		
Have any wells been drilled in the vicinity of the proposed well which would affect the spacing or siting requirements for this location?		✓
Have there been any unit or other agreements put in place that could affect the permitting or operation of this proposed well?		✓
Have there been any changes to the access route including ownership or right-of-way, which could affect the proposed location?		✓
Has the approved source of water for drilling changed?		✓
Have there been any physical changes to the surface location or access route which will require a change in plans from what was discussed at the onsite evaluation?		✓
Is bonding still in place, which covers this proposed well? Bond No B008001		✓

Any desired or necessary changes to either a pending or approved Application for Permit to Drill that is being transferred, should be filed on a Sundry Notice, Form 9, or amended Application for Permit to Drill, Form 3, as appropriate, with necessary supporting information as required.

Name (please print) Robert Webster Title Chief Operating Officer

Signature Date 06/11/2013

Representing (company name) Magnum Solution Mining, LLC

The person signing this form must have legal authority to represent the company or individual(s) to be listed as the new operator on the Application for Permit to Drill.

(3/2004)

APPROVED

JUN 12 2013

DIV. OIL GAS & MINING

BY: Zeke Clement for Rachel Medina

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

RECEIVED

JUN 12 2013

Div. of Oil, Gas & Mining

Request to Transfer Application or Permit to Drill

(This form should accompany a Sundry Notice, Form 9, requesting APD transfer)

Well name:	CW-6
API number:	43027500030000
Location:	Qtr-Qtr: NWNW Section: 26 Township: 15S Range: 7W
Company that filed original application:	Magnum Solution Mining, LLC N3715
Date original permit was issued:	05/02/2013
Company that permit was issued to:	Magnum Solution Mining, LLC

Check one	Desired Action:
	Transfer pending (unapproved) Application for Permit to Drill to new operator
	The undersigned as owner with legal rights to drill on the property, hereby verifies that the information as submitted in the pending Application for Permit to Drill, remains valid and does not require revision. The new owner of the application accepts and agrees to the information and procedures as stated in the application.
✓	**Transfer approved Application for Permit to Drill to new operator**
	The undersigned as owner with legal rights to drill on the property as permitted, hereby verifies that the information as submitted in the previously approved application to drill, remains valid and does not require revision.

Following is a checklist of some items related to the application, which should be verified.	Yes	No
If located on private land, has the ownership changed?		✓
If so, has the surface agreement been updated?		
Have any wells been drilled in the vicinity of the proposed well which would affect the spacing or siting requirements for this location?		✓
Have there been any unit or other agreements put in place that could affect the permitting or operation of this proposed well?		✓
Have there been any changes to the access route including ownership or right-of-way, which could affect the proposed location?		✓
Has the approved source of water for drilling changed?		✓
Have there been any physical changes to the surface location or access route which will require a change in plans from what was discussed at the onsite evaluation?		✓
Is bonding still in place, which covers this proposed well? Bond No. B008000		✓

Any desired or necessary changes to either a pending or approved Application for Permit to Drill that is being transferred, should be filed on a Sundry Notice, Form 9, or amended Application for Permit to Drill, Form 3, as appropriate, with necessary supporting information as required.

Name (please print) Robert Webster Title Chief Operating Officer

Signature Date 06/11/2013

Representing (company name) Magnum Solution Mining, LLC

The person signing this form must have legal authority to represent the company or individual(s) to be listed as the new operator on the Application for Permit to Drill

(3/2004)

MAGNUM

3165 E. Millrock Dr., #330
Holladay, Utah 84121
801-993-7001

www.westernenergyhub.com

RECEIVED
MAY 2 8 2013
DIV. OF OIL, GAS & MINING

May 23, 2013

Zeke Clements
Division of Oil, Gas and Mining
1594 West North Temple, Suite 120
Salt Lake City, Utah 84114

Mr. Clements,

Enclosed is a Designation of Agent or Operator Form (Form 5) designating Magnum NGLs Solution Mining, LLC as the agent and operator for Well Nos. 43027500020000 and 43027500030000 within an approximately 47.69 acre area (as described in the form). It is Magnum's understanding that these two wells are currently in the Division of Oil, Gas and Mining's files as being operated by Magnum NGLs Solution Mining, LLC although the two permits list Magnum Solution Mining, LLC as the permit holder. As discussed with Rachel Medina, Magnum is submitting this Form 5 to ensure the change is properly documented.

If you have any questions, please feel free to contact me.

Thank you,

Tiffany A. James
Vice President,
Project Development
and Government Affairs
801.719.9131 cellular
tjames@westernenergyhub.com

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

FORM 9

5.LEASE DESIGNATION AND SERIAL NUMBER: 51573-OBA

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7.UNIT or CA AGREEMENT NAME:

1. TYPE OF WELL
Gas Storage Well

8. WELL NAME and NUMBER: CW-6

2. NAME OF OPERATOR:
MAGNUM NGLS SOLUTION MINING LLC

9. API NUMBER: 43027500030000

3. ADDRESS OF OPERATOR:
3165 East Millrock Drive Suite 330 , Holladay, UT, 84121

PHONE NUMBER: 801 993-7001 Ext

9. FIELD and POOL or WILDCAT: WILDCAT

4. LOCATION OF WELL
FOOTAGES AT SURFACE:
0442 FNL 0284 FWL
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:
Qtr/Qtr: NWNW Section: 26 Township: 15.0S Range: 07.0W Meridian: S

COUNTY: MILLARD

STATE: UTAH

11.
CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
☐ NOTICE OF INTENT Approximate date work will start:	☐ ACIDIZE	☐ ALTER CASING	☐ CASING REPAIR
☑ SUBSEQUENT REPORT Date of Work Completion: 8/6/2013	☑ CHANGE TO PREVIOUS PLANS	☐ CHANGE TUBING	☐ CHANGE WELL NAME
☐ SPUD REPORT Date of Spud:	☐ CHANGE WELL STATUS	☐ COMMINGLE PRODUCING FORMATIONS	☐ CONVERT WELL TYPE
☐ DRILLING REPORT Report Date:	☐ DEEPEN	☐ FRACTURE TREAT	☐ NEW CONSTRUCTION
	☐ OPERATOR CHANGE	☐ PLUG AND ABANDON	☐ PLUG BACK
	☐ PRODUCTION START OR RESUME	☐ RECLAMATION OF WELL SITE	☐ RECOMPLETE DIFFERENT FORMATION
	☐ REPERFORATE CURRENT FORMATION	☐ SIDETRACK TO REPAIR WELL	☐ TEMPORARY ABANDON
	☐ TUBING REPAIR	☐ VENT OR FLARE	☐ WATER DISPOSAL
	☐ WATER SHUTOFF	☐ SI TA STATUS EXTENSION	☐ APD EXTENSION
	☐ WILDCAT WELL DETERMINATION	☐ OTHER	OTHER:

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Magnum Cavern Well 6 (CW-6) Blow Out Preventer use during drilling of sediments above salt formation: Due to the proximity of the nearby wells and the subsurface geological information obtained, Magnum NGLs Solution Mining, LLC is proposing to eliminate the use of the Blow Out Preventer while drilling through the inter-bedded gravel, sand and clay aquifer layers for the 24-inch and 30-inch diameter casing intervals for CW-6. To date, no formation gases or pressures have been encountered in the following wells drilled just above the salt formation: Magnum MH-1 (TD:6,420 ft); Magnum Water Well MH-5 (TD:2,385 ft); Cavern Well CW-5 (TD:3,260 ft); and, Nested Observation Well DA-1 (TD:1,600 ft). See attached scaled map for well proximity. Blow Out Preventers will be used when drilling in to the sale commences.

Approved by the Utah Division of Oil, Gas and Mining

Date: August 22, 2013

By: Dark K Quist

NAME (PLEASE PRINT)	PHONE NUMBER	TITLE
Tiffany A. James	801 993-7001	Vice President Project Development
SIGNATURE		**DATE**
N/A		8/9/2013

RECEIVED: Aug. 09, 2013

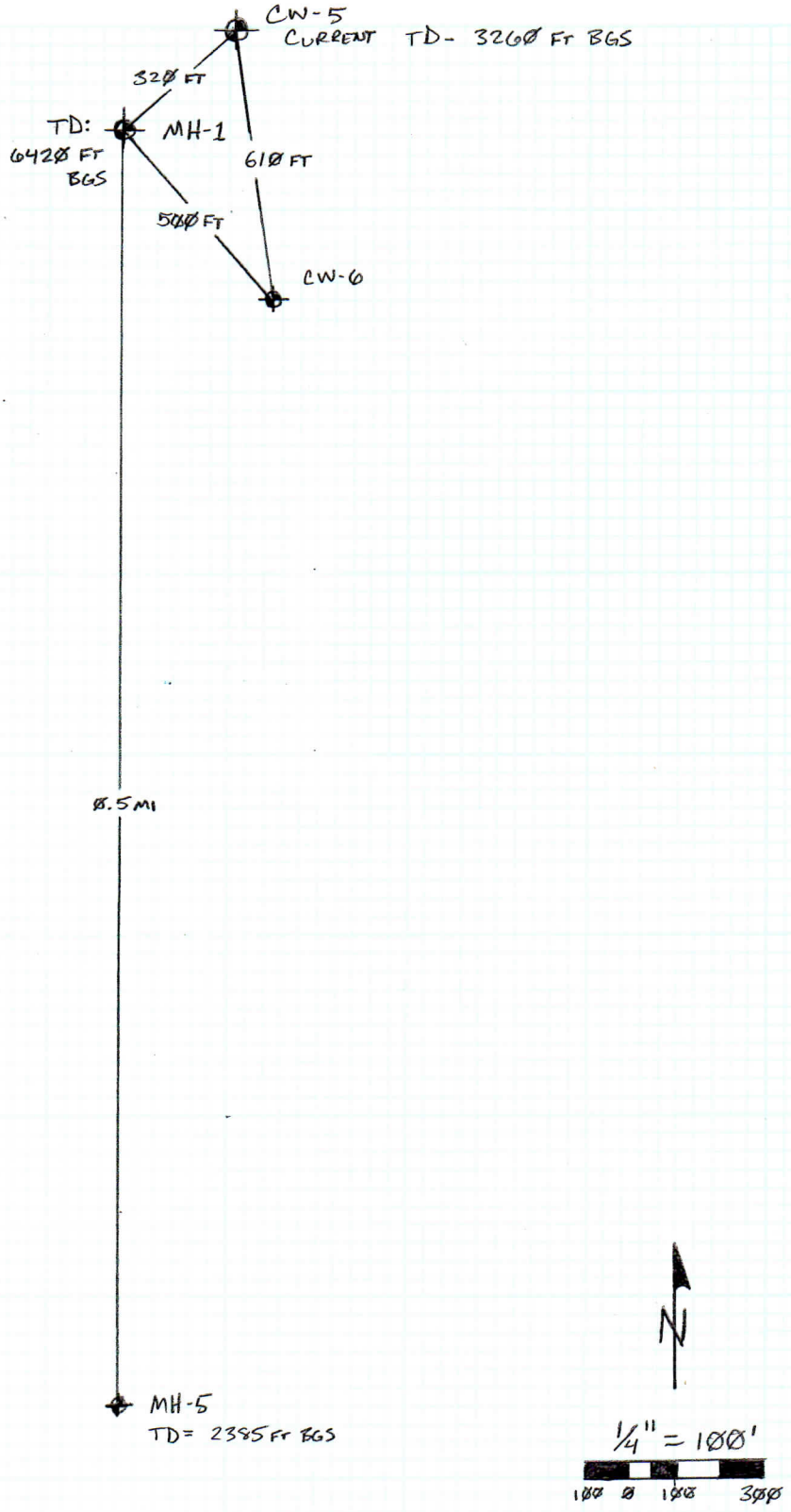
amec

SHEET 1 OF 1

PROJECT MAGNUM NGLs PROJECT NO. 327/8148.CW6.****

SUBJECT _____ BY J. ROBERTS DATE 8/2/2013

_____ REVIEWED BY _____ DATE _____



STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

5.LEASE DESIGNATION AND SERIAL NUMBER: 51573-OBA

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7.UNIT or CA AGREEMENT NAME:

1. TYPE OF WELL
Gas Storage Well

8. WELL NAME and NUMBER: CW-6

2. NAME OF OPERATOR:
MAGNUM NGLS SOLUTION MINING LLC

9. API NUMBER: 43027500030000

3. ADDRESS OF OPERATOR:
3165 East Millrock Drive Suite 330 , Holladay, UT, 84121

PHONE NUMBER: 801 993-7001 Ext

9. FIELD and POOL or WILDCAT: WILDCAT

4. LOCATION OF WELL
FOOTAGES AT SURFACE:
0442 FNL 0284 FWL
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:
Qtr/Qtr: NWNW Section: 26 Township: 15.0S Range: 07.0W Meridian: S

COUNTY: MILLARD

STATE: UTAH

11.
CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
✓ NOTICE OF INTENT Approximate date work will start: 8/6/2013	☐ ACIDIZE	☐ ALTER CASING	☐ CASING REPAIR
	✓ CHANGE TO PREVIOUS PLANS	☐ CHANGE TUBING	☐ CHANGE WELL NAME
	☐ CHANGE WELL STATUS	☐ COMMINGLE PRODUCING FORMATIONS	☐ CONVERT WELL TYPE
☐ SUBSEQUENT REPORT Date of Work Completion:	☐ DEEPEN	☐ FRACTURE TREAT	☐ NEW CONSTRUCTION
	☐ OPERATOR CHANGE	☐ PLUG AND ABANDON	☐ PLUG BACK
	☐ PRODUCTION START OR RESUME	☐ RECLAMATION OF WELL SITE	☐ RECOMPLETE DIFFERENT FORMATION
☐ SPUD REPORT Date of Spud:	☐ REPERFORATE CURRENT FORMATION	☐ SIDETRACK TO REPAIR WELL	☐ TEMPORARY ABANDON
	☐ TUBING REPAIR	☐ VENT OR FLARE	☐ WATER DISPOSAL
☐ DRILLING REPORT Report Date:	☐ WATER SHUTOFF	☐ SI TA STATUS EXTENSION	☐ APD EXTENSION
	☐ WILDCAT WELL DETERMINATION	☐ OTHER	OTHER:

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Magnum Cavern Well 6 (CW-6) minor modification of 24-inch casing specification: Magnum is requesting a minor modification of the Cavern Well 6 (CW-6) casing design specific only to the 24-inch casing. The original 24-inch casing design includes 2500 ft of 24-inch casing with a 1.0-inch wall thickness at 245.64 lbs/ft, grade X-52; and 900 ft of 24-inch casing with a 1.25-inch wall thickness at 303.71 lbs/ft, grade X-52, cemented to the surface. The requested revised engineering design includes 1700 ft of 24-inch casing with a 0.75-inch wall thickness at 186.23 lbs/ft, grade X-52; and 1800 ft of 24-inch casing with a 0.969-inch wall thickness at 238.57 lbs/ft, grade X-52, cemented to the surface. The attached revised schematic for CW-6 shows the modified design for the 24-inch casing.

Approved by the Utah Division of Oil, Gas and Mining

Date: August 22, 2013

By: Dark K Quist

NAME (PLEASE PRINT)	PHONE NUMBER	TITLE
Tiffany A. James	801 993-7001	Vice President Project Development
SIGNATURE		**DATE**
N/A		8/9/2013

RECEIVED: Aug. 09, 2013

Well name:	**43027500030000 CW-6**
Operator:	**Magnum Solution Mining, LLC**
String type:	Intermediate
Project ID:	43-027-50003
Location:	MILLARD COUNTY

Design parameters:

Collapse
Mud weight: 10.200 ppg
Design is based on evacuated pipe.

Burst
Max anticipated surface pressure: 1,116 psi
Internal gradient: 0.220 psi/ft
Calculated BHP 1,886 psi

No backup mud specified.

Minimum design factors:

Collapse:
Design factor 1.125

Burst:
Design factor 1.00

Tension:
8 Round STC: 1.80 (J)
8 Round LTC: 1.80 (J)
Buttress: 1.60 (J)
Premium: 1.50 (J)
Body yield: 1.60 (B)

Tension is based on air weight.
Neutral point: 3,012 ft

Estimated cost: 382,128 ($)

Environment:
H2S considered? No
Surface temperature: 74 °F
Bottom hole temperature: 123 °F
Temperature gradient: 1.40 °F/100ft
Minimum section length: 1,000 ft

Cement top: 2,371 ft

Non-directional string.

Re subsequent strings:
Next setting depth: 3,600 ft
Next mud weight: 10.200 ppg
Next setting BHP: 1,908 psi
Fracture mud wt: 30.000 ppg
Fracture depth: 3,500 ft
Injection pressure: 5,455 psi

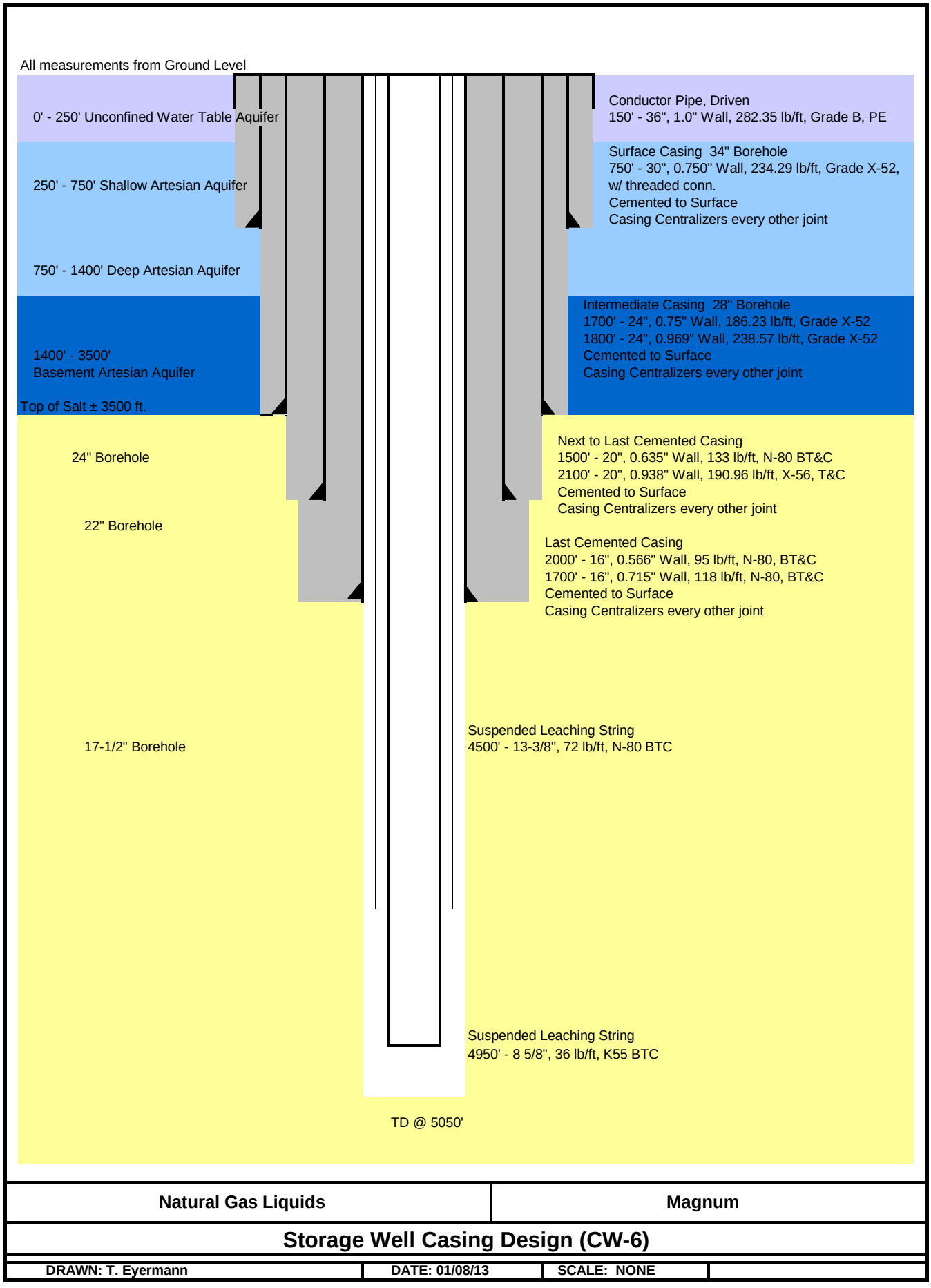
Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Est. Cost ($)
2	1700	24	186.23	X-52	Plain End	1700	1700	22.25	168300
1	1800	24	238.35	X-52	Plain End	3500	3500	22	213828

Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (kips)	Tension Strength (kips)	Tension Design Factor
2	901	1346	1.494	1490	2843	1.91	745.6	2848.6	3.82 B
1	1854	2470	1.332	1886	3674	1.95	429	2849	6.64 J

Prepared by: Helen Sadik-Macdonald
Div of Oil,Gas & Mining
Phone: 801 538-5357
FAX: 801-359-3940
Date: August 22,2013
Salt Lake City, Utah

Remarks:
Collapse is based on a vertical depth of 3500 ft, a mud weight of 10.2 ppg The casing is considered to be evacuated for collapse purposes.
Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.



Natural Gas Liquids	Magnum

Storage Well Casing Design (CW-6)

DRAWN: T. Eyermann	DATE: 01/08/13	SCALE: NONE	

RECEIVED: Aug. 09, 2013

CONFIDENTIAL

DIVISION OF OIL, GAS AND MINING

SPUDDING INFORMATION

Name of Company; **MAGNUM NGLS SOLUTION MNING LLC**

Well Name: **CW6**

Api No: **43-027-50003** Lease Type **STATE**

Section **26** Township **15S** Range **07W** County **MILLARD**

Drilling Contractor **LM-200** RIG # **LX 77**

SPUDDED:

Date **08/01/2013**

Time

How **DRY**

Drilling will Commence:

Reported by **SCOTT FARLEY**

Telephone # **(303) 324-6906**

Date **07/31/2013** **Signed** **CHD**

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

5.LEASE DESIGNATION AND SERIAL NUMBER: 51573-OBA

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7.UNIT or CA AGREEMENT NAME:

1. TYPE OF WELL
Gas Storage Well

8. WELL NAME and NUMBER: CW-6

2. NAME OF OPERATOR:
MAGNUM NGLS SOLUTION MINING LLC

9. API NUMBER: 43027500030000

3. ADDRESS OF OPERATOR:
3165 East Millrock Drive Suite 330 , Holladay, UT, 84121

PHONE NUMBER: 801 993-7001 Ext

9. FIELD and POOL or WILDCAT: WILDCAT

4. LOCATION OF WELL
FOOTAGES AT SURFACE:
0442 FNL 0284 FWL
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:
Qtr/Qtr: NWNW Section: 26 Township: 15.0S Range: 07.0W Meridian: S

COUNTY: MILLARD

STATE: UTAH

11.
CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
☐ NOTICE OF INTENT Approximate date work will start:	☐ ACIDIZE	☐ ALTER CASING	☐ CASING REPAIR
✓ SUBSEQUENT REPORT Date of Work Completion: 8/31/2013	☐ CHANGE TO PREVIOUS PLANS	☐ CHANGE TUBING	☐ CHANGE WELL NAME
☐ SPUD REPORT Date of Spud:	☐ CHANGE WELL STATUS	☐ COMMINGLE PRODUCING FORMATIONS	☐ CONVERT WELL TYPE
☐ DRILLING REPORT Report Date:	☐ DEEPEN	☐ FRACTURE TREAT	☐ NEW CONSTRUCTION
	☐ OPERATOR CHANGE	☐ PLUG AND ABANDON	☐ PLUG BACK
	☐ PRODUCTION START OR RESUME	☐ RECLAMATION OF WELL SITE	☐ RECOMPLETE DIFFERENT FORMATION
	☐ REPERFORATE CURRENT FORMATION	☐ SIDETRACK TO REPAIR WELL	☐ TEMPORARY ABANDON
	☐ TUBING REPAIR	☐ VENT OR FLARE	☐ WATER DISPOSAL
	☐ WATER SHUTOFF	☐ SI TA STATUS EXTENSION	☐ APD EXTENSION
	☐ WILDCAT WELL DETERMINATION	✓ OTHER	OTHER: Monthly Status Report-Augu

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

See attached Magnum Cavern Well #CW-6 (APD #4849 - API Well No. 430275000 30000) Monthly Status Report Summary for August 2013. Drilling activities this month were all in direct accordance with project specifications and Utah DOGM Application Permit to Drill requirements with the exception to the plugging of the 5 1/2" stab-in to the float shoe while cementing the 30" diameter surface casing. A separate subsequent report will be submitted to detail this minor field change from previous plans.

Accepted by the Utah Division of Oil, Gas and Mining
FOR RECORD ONLY
September 05, 2013

NAME (PLEASE PRINT)	PHONE NUMBER	TITLE
Tiffany A. James	801 993-7001	Vice President Project Development
SIGNATURE		**DATE**
N/A		9/4/2013

RECEIVED: Sep. 04, 2013

Magnum Cavern Storage Well #CW-6 – August 2013 Monthly Status Report Summary

31 July 2013:	Spud notification submitted to Utah DOGM (Carol Daniels).
05 August, 2013:	Prepare to spud hole.
06 August 2013:	Spud hole at 18:30 hrs, drill 44" diameter hole to 30'.
07-08 August 2013:	Drill 44" hole to 156'. Prepare to install 36" casing.
09 August 2013:	Install 36" diameter casing to 156' and cement in place.
10 August 2013	Allow cement to cure and prepare for drilling 30" diameter borehole..
11 August 2013:	Trip in 17 ½" tools and drilled pilot hole to 354'.
12-13 August 2013:	Drill 17 ½" pilot hole to 784'.
14 August 2013:	Run electric log of pilot hole. Start reaming hole to 34" diameter, borehole was reamed to 256'.
15-18 August 2013:	Reamed borehole to 34" diameter to a depth of 593'. Driller had to trip out and unplug bit three times due to fat clays.
19-22 August 2013:	Reamed borehole to 34" to a total depth of 778'. Driller had to trip out and unplug drill bit three times due to fat clays.
22 August 2013:	Jet West performed a caliper log on the borehole.
23 August 2013:	Install 30" casing to 769.67' below ground surface.
24 August 2013:	Attempt to cement through float shoe. Super mixer mechanical problems encountered. Super mixer repaired.
25 August 2013:	Trip out drill pipe trip in tremmie in annulus and cement grout 30" casing in place.
26-27 August 2013:	Allow cement to cure. Demobilize rig & equipment. LM-700 drill rig to set-up and resume drilling Cavern Well CW-6 upon completion of Cavern Well CW-5.

RECEIVED: Sep. 04, 2013

CONFIDENTIAL

DIVISION OF OIL, GAS AND MINING

SPUDDING INFORMATION

Name of Company; **MAGNUM NGLS SOLUTION MNING LLC**

Well Name: **CW6**

Api No: **43-027-50003** Lease Type **STATE**

Section **26** Township **15S** Range **07W** County **MILLARD**

Drilling Contractor **LM-200** RIG # **LX 77**

SPUDDED:

Date **08/01/2013**

Time

How **DRY**

Drilling will Commence:

Reported by **SCOTT FARLEY**

Telephone # **(303) 324-6906**

Date **07/31/2013** **Signed** **CHD**

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

FORM 9

5.LEASE DESIGNATION AND SERIAL NUMBER: 51573-OBA

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7.UNIT or CA AGREEMENT NAME:

1. TYPE OF WELL
Gas Storage Well

8. WELL NAME and NUMBER: CW-6

2. NAME OF OPERATOR:
MAGNUM NGLS SOLUTION MINING LLC

9. API NUMBER: 43027500030000

3. ADDRESS OF OPERATOR:
3165 East Millrock Drive Suite 330 , Holladay, UT, 84121

PHONE NUMBER: 801 993-7001 Ext

9. FIELD and POOL or WILDCAT: WILDCAT

4. LOCATION OF WELL
FOOTAGES AT SURFACE:
0442 FNL 0284 FWL
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:
Qtr/Qtr: NWNW Section: 26 Township: 15.0S Range: 07.0W Meridian: S

COUNTY: MILLARD

STATE: UTAH

11.
CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
☐ NOTICE OF INTENT Approximate date work will start:	☐ ACIDIZE	☐ ALTER CASING	☐ CASING REPAIR
☑ SUBSEQUENT REPORT Date of Work Completion: 8/26/2013	☑ CHANGE TO PREVIOUS PLANS	☐ CHANGE TUBING	☐ CHANGE WELL NAME
☐ SPUD REPORT Date of Spud:	☐ CHANGE WELL STATUS	☐ COMMINGLE PRODUCING FORMATIONS	☐ CONVERT WELL TYPE
☐ DRILLING REPORT Report Date:	☐ DEEPEN	☐ FRACTURE TREAT	☐ NEW CONSTRUCTION
	☐ OPERATOR CHANGE	☐ PLUG AND ABANDON	☐ PLUG BACK
	☐ PRODUCTION START OR RESUME	☐ RECLAMATION OF WELL SITE	☐ RECOMPLETE DIFFERENT FORMATION
	☐ REPERFORATE CURRENT FORMATION	☐ SIDETRACK TO REPAIR WELL	☐ TEMPORARY ABANDON
	☐ TUBING REPAIR	☐ VENT OR FLARE	☐ WATER DISPOSAL
	☐ WATER SHUTOFF	☐ SI TA STATUS EXTENSION	☐ APD EXTENSION
	☐ WILDCAT WELL DETERMINATION	☐ OTHER	OTHER:

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

An alternative method for cementing the 30-inch diameter casing was employed due to unexpected complications with the specified stab-in method when the float collar became plugged. Cementing of the casing annulus was accomplished using a tremmie pipe/pumping method whereby a tremmie pipe was inserted into the casing annulus and cement (mixed per design specifications) was pumped from the bottom of the casing upward.

Accepted by the
Utah Division of
Oil, Gas and Mining
FOR RECORD ONLY
October 09, 2013

NAME (PLEASE PRINT)	PHONE NUMBER	TITLE
Tiffany A. James	801 993-7001	Vice President Project Development
SIGNATURE		**DATE**
N/A		9/25/2013

RECEIVED: Sep. 25, 2013

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

5.LEASE DESIGNATION AND SERIAL NUMBER: 51573-OBA

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7.UNIT or CA AGREEMENT NAME:

1. TYPE OF WELL
Gas Storage Well

8. WELL NAME and NUMBER: CW-6

2. NAME OF OPERATOR:
MAGNUM NGLS SOLUTION MINING LLC

9. API NUMBER: 43027500030000

3. ADDRESS OF OPERATOR:
3165 East Millrock Drive Suite 330 , Holladay, UT, 84121

PHONE NUMBER: 801 993-7001 Ext

9. FIELD and POOL or WILDCAT: WILDCAT

4. LOCATION OF WELL
FOOTAGES AT SURFACE:
0442 FNL 0284 FWL
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:
Qtr/Qtr: NWNW Section: 26 Township: 15.0S Range: 07.0W Meridian: S

COUNTY: MILLARD

STATE: UTAH

11.
CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
☐ NOTICE OF INTENT Approximate date work will start:	☐ ACIDIZE	☐ ALTER CASING	☐ CASING REPAIR
✓ SUBSEQUENT REPORT Date of Work Completion: 9/30/2013	☐ CHANGE TO PREVIOUS PLANS	☐ CHANGE TUBING	☐ CHANGE WELL NAME
☐ SPUD REPORT Date of Spud:	☐ CHANGE WELL STATUS	☐ COMMINGLE PRODUCING FORMATIONS	☐ CONVERT WELL TYPE
☐ DRILLING REPORT Report Date:	☐ DEEPEN	☐ FRACTURE TREAT	☐ NEW CONSTRUCTION
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	☐ WATER SHUTOFF	☐ SI TA STATUS EXTENSION	☐ APD EXTENSION
	☐ WILDCAT WELL DETERMINATION	✓ OTHER	OTHER: September 2013 Monthly Re

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Magnum Cavern Well #CW-6 (APD #4849 - API Well No. 43027500030000) Monthly Status Report Summary for September 2013: No drilling activities were conducted this month. As previously reported, both the 36-inch conductor pipe and 30-inch casing were installed in August. At that time, Magnum postponed further drilling activities related to Cavern Well 6. It is anticipated drilling will recommence the second week of October.

Accepted by the Utah Division of Oil, Gas and Mining
FOR RECORD ONLY
October 21, 2013

NAME (PLEASE PRINT)	PHONE NUMBER	TITLE
Tiffany A. James	801 993-7001	Vice President Project Development

SIGNATURE	DATE
N/A	10/3/2013

RECEIVED: Oct. 03, 2013

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

FORM 9

5.LEASE DESIGNATION AND SERIAL NUMBER: 51573-OBA

SUNDRY NOTICES AND REPORTS ON WELLS

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6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7.UNIT or CA AGREEMENT NAME:

1. TYPE OF WELL
Gas Storage Well

8. WELL NAME and NUMBER:
CW-6

2. NAME OF OPERATOR:
MAGNUM NGLS SOLUTION MINING LLC

9. API NUMBER:
43027500030000

3. ADDRESS OF OPERATOR:
3165 East Millrock Drive Suite 330 , Holladay, UT, 84121

PHONE NUMBER:
801 993-7001 Ext

9. FIELD and POOL or WILDCAT:
WILDCAT

4. LOCATION OF WELL
FOOTAGES AT SURFACE:
0442 FNL 0284 FWL
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:
Qtr/Qtr: NWNW Section: 26 Township: 15.0S Range: 07.0W Meridian: S

COUNTY:
MILLARD

STATE:
UTAH

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TYPE OF SUBMISSION	TYPE OF ACTION		
☐ NOTICE OF INTENT Approximate date work will start:	☐ ACIDIZE	☐ ALTER CASING	☐ CASING REPAIR
☑ SUBSEQUENT REPORT Date of Work Completion: 10/31/2014	☐ CHANGE TO PREVIOUS PLANS	☐ CHANGE TUBING	☐ CHANGE WELL NAME
☐ SPUD REPORT Date of Spud:	☐ CHANGE WELL STATUS	☐ COMMINGLE PRODUCING FORMATIONS	☐ CONVERT WELL TYPE
☐ DRILLING REPORT Report Date:	☐ DEEPEN	☐ FRACTURE TREAT	☐ NEW CONSTRUCTION
	☐ OPERATOR CHANGE	☐ PLUG AND ABANDON	☐ PLUG BACK
	☐ PRODUCTION START OR RESUME	☐ RECLAMATION OF WELL SITE	☐ RECOMPLETE DIFFERENT FORMATION
	☐ REPERFORATE CURRENT FORMATION	☐ SIDETRACK TO REPAIR WELL	☐ TEMPORARY ABANDON
	☐ TUBING REPAIR	☐ VENT OR FLARE	☐ WATER DISPOSAL
	☐ WATER SHUTOFF	☐ SI TA STATUS EXTENSION	☐ APD EXTENSION
	☐ WILDCAT WELL DETERMINATION	☑ OTHER	OTHER: Monthly Report-October 201

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Magnum Cavern Well #CW-6 (APD #4849 - API Well No. 430275000 30000) Monthly Status Report for October, 2013. See attached summary of activities. With the exception of the borehole deviation survey frequency; the drilling was performed in direct accordance with project specifications and Utah DOGM Application Permit to Drill requirements (See attachment for explanation).

Accepted by the Utah Division of Oil, Gas and Mining
FOR RECORD ONLY
November 29, 2013

NAME (PLEASE PRINT)	PHONE NUMBER	TITLE
Tiffany A. James	801 993-7001	Vice President Project Development
SIGNATURE		**DATE**
N/A		11/1/2013

RECEIVED: Nov. 01, 2013

Magnum Cavern Storage Well #CW-6 – October 2013 Monthly Status Report Summary

29 Aug – 07 Oct 2013: No activities conducted for Cavern Well CW-6.

07-09 Oct. 2013: LM-700 Drill Rigged up on CW-6. Prepare to drill, mix mud.

10 Oct. 2013: Trip in with 17.5" BHA. Tag top of cement inside 30" Surface Casing at 688' bgs. Ream out cement from 688'-770'.

11-27 Oct. 2013: Drill 17.5" diameter pilot hole for 24" Intermediate Casing Interval from 770'-3,296' bgs. **Total 17.5" Diameter Pilot Hole Footage Drilled: 2,526 feet**.

27 Oct. 2013: Completed geophysical wireline logging (ELog) of pilot hole.
Interval logged: ~770'-3,296' bgs.

28-31 Oct 2013: Drill/Ream and open up pilot hole for 24" diameter Intermediate Casing Interval using a 28" diameter BHA. Ream out cement inside 30" diameter casing from 692'-770' bgs. Open up pilot hole to 28" diameter in unconsolidated sediments from 770'- 1,335' bgs.
Total 28" Diameter Opener/Reaming Footage Drilled: *565 feet
***Note:** Does not include cement reamed inside 30" casing.

***Notes:**

All drilling and borehole deviation surveys were completed successfully and conform to Project & Permit Specifications, Requirements and Tolerances.

Due to the consistency of inclinations recorded, a slight modification to the borehole deviation survey frequency was made for the Quaternary unconsolidated sediments interval. The frequency of deviation surveys was reduced to 200' increments below a depth of 2,085' bgs. From top of salt to total depth the borehole deviation surveys will be conducted every 100'.

RECEIVED: Nov. 01, 2013

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

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5.LEASE DESIGNATION AND SERIAL NUMBER: 51573-OBA

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7.UNIT or CA AGREEMENT NAME:

1. TYPE OF WELL
Gas Storage Well

8. WELL NAME and NUMBER: CW-6

2. NAME OF OPERATOR:
MAGNUM NGLS SOLUTION MINING LLC

9. API NUMBER: 43027500030000

3. ADDRESS OF OPERATOR:
3165 East Millrock Drive Suite 330 , Holladay, UT, 84121

PHONE NUMBER: 801 993-7001 Ext

9. FIELD and POOL or WILDCAT: WILDCAT

4. LOCATION OF WELL
FOOTAGES AT SURFACE:
0442 FNL 0284 FWL
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:
Qtr/Qtr: NWNW Section: 26 Township: 15.0S Range: 07.0W Meridian: S

COUNTY: MILLARD

STATE: UTAH

11.
CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
☐ NOTICE OF INTENT Approximate date work will start:	☐ ACIDIZE	☐ ALTER CASING	☐ CASING REPAIR
✓ SUBSEQUENT REPORT Date of Work Completion: 11/30/2013	☐ CHANGE TO PREVIOUS PLANS	☐ CHANGE TUBING	☐ CHANGE WELL NAME
☐ SPUD REPORT Date of Spud:	☐ CHANGE WELL STATUS	☐ COMMINGLE PRODUCING FORMATIONS	☐ CONVERT WELL TYPE
☐ DRILLING REPORT Report Date:	☐ DEEPEN	☐ FRACTURE TREAT	☐ NEW CONSTRUCTION
	☐ OPERATOR CHANGE	☐ PLUG AND ABANDON	☐ PLUG BACK
	☐ PRODUCTION START OR RESUME	☐ RECLAMATION OF WELL SITE	☐ RECOMPLETE DIFFERENT FORMATION
	☐ REPERFORATE CURRENT FORMATION	☐ SIDETRACK TO REPAIR WELL	☐ TEMPORARY ABANDON
	☐ TUBING REPAIR	☐ VENT OR FLARE	☐ WATER DISPOSAL
	☐ WATER SHUTOFF	☐ SI TA STATUS EXTENSION	☐ APD EXTENSION
	☐ WILDCAT WELL DETERMINATION	✓ OTHER	OTHER: Monthly Report-November 2

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Magnum Cavern Well #CW-6 (APD #4849 - API Well No. 43027500030000) Monthly Status Report for November, 2013. All activities were performed in direct accordance with project specifications and Utah DOGM permit to requirements. See attachment for a summary of drilling and related activities.

Accepted by the Utah Division of Oil, Gas and Mining
FOR RECORD ONLY
January 08, 2014

NAME (PLEASE PRINT)	PHONE NUMBER	TITLE
Tiffany A. James	801 993-7001	Vice President Project Development
SIGNATURE		**DATE**
N/A		12/4/2013

RECEIVED: Dec. 04, 2013

Magnum Cavern Storage Well #CW-6 – November 2013 Monthly Status Report Summary

01-17 Nov. 2013: Drill/Ream Opener hole for 24" Diameter Intermediate Casing Interval using a 28" Diameter BHA. Open up Pilot Hole to 28" Diameter in unconsolidated sediments from 1,015'-3,296' bgs.
Total Depth of 28" dia. Opener Hole: 3,296' bgs.
Total 28" Diameter Opener/Reaming Footage Drilled: 2,281 feet
Some downtime to replace hydraulic pump and one of the Hagglund Brake Motors for the draw-works was incurred on November 9th & 10th.

17-18 Nov. 2013: Trip out 28" BHA. Complete Caliper Wireline Logging of Borehole.

18-20 Nov. 2013: **Install 24" Diameter Intermediate Casing String.**
24" Diameter Casing Landed at 3,286.02' bgs.

20 Nov. 2013: Trip in, stab into 5½" FH Float Collar, Circulate/Clean & Flush Annulus & Cement 24" Diameter Casing Annulus using Ash Grove Type II/V Portland Class A Cement. Good Cement Return after Pumping 800 BBLs.
Total Cement Used = 1,050 BBLs/5,000 Sacks.

20-22 Nov. 2013: Wait On Cement to Cure (Minimum 48-Hours).
Prepare to pressure test – Weld on Flange & Nipple-up Wellhead/H2S Test Plug.
22" Diameter Intermediate Casing String Pressure Test Summary:

- Wellhead/Test Plug: Weatherford H2S Test Plug/Well Head (S/N #59866)
- Barton Recorder: Instrument #118730 (0-2,000 psi); Calibrated: 8 Nov. 2013.
- **Test shut-in starting pressure: 1,270 psi (pressure gauge) / 1,280 psi (Recorder)**
- **Test ending pressure: 1,250 psi (pressure gauge) / 1,260 psi (Barton Recorder)**
- **Test duration: 82 minutes**
- **Pressure loss: 20 psi / 1.6% (pressure gauge & Barton Recorder)**

23-24 Nov. 2013: Ream out float collar, grout shoe & cement inside and below 24" diameter casing from 3,245'-3,297' bgs using 21½" dia. tri-cone carbide button bit.
Drill Pre-Opener hole to 21½" diameter in unconsolidated sediments from 3,297'- 3,305' bgs to accommodate under-reamer.
Total 21.5" Diameter Opener/Reaming Footage Drilled: 60 feet
Air-lift and evacuate drill mud/water from borehole in preparations to switch to Brine Salt Mud.

25-28 Nov. 2013: Drill 12¼" diameter pilot hole for 20" & 16" diameter Cemented Casing Strings from 3,305'-3,720' bgs. Borehole Deviation Surveys collected approximately every 100' while drilling. Deviation results were inconsistent.
Total Depth of Pilot Hole: 3,720 feet bgs.
Total 12¼" Diameter Pilot Hole Footage Drilled: 415 feet.

28-30 Nov. 2013: Jet West completed wireline geophysical & borehole deviation logging for 12¼" open pilot hole interval from ~3,296'-3,720' bgs the morning of 29 November. From ~3,375' to the total depth at 3,720' bgs, the borehole had deviated to an angle of 3.5 degrees from vertical in a north-westerly direction. A 21½" dia. bit and Drop BHA was tripped in and advanced from 3,305'-3,360' bgs, in an attempt to plumb the borehole.
Top of Halite: 3,476 feet bgs.

Notes: **All Drilling, Wireline Logging, Casing Installation, Cementation & Pressure Test were completed successfully, and Conform to Project & Permit Specifications, Requirements and Tolerances. Corrective actions are currently being attempted for the borehole deviation.**

RECEIVED: Dec. 04, 2013

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

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5.LEASE DESIGNATION AND SERIAL NUMBER: 51573-OBA

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7.UNIT or CA AGREEMENT NAME:

1. TYPE OF WELL
Gas Storage Well

8. WELL NAME and NUMBER: CW-6

2. NAME OF OPERATOR:
MAGNUM NGLS SOLUTION MINING LLC

9. API NUMBER: 43027500030000

3. ADDRESS OF OPERATOR:
3165 East Millrock Drive Suite 330 , Holladay, UT, 84121

PHONE NUMBER: 801 993-7001 Ext

9. FIELD and POOL or WILDCAT: WILDCAT

4. LOCATION OF WELL
FOOTAGES AT SURFACE:
0442 FNL 0284 FWL
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:
Qtr/Qtr: NWNW Section: 26 Township: 15.0S Range: 07.0W Meridian: S

COUNTY: MILLARD

STATE: UTAH

11.
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TYPE OF SUBMISSION	TYPE OF ACTION		
☐ NOTICE OF INTENT Approximate date work will start:	☐ ACIDIZE	☐ ALTER CASING	☐ CASING REPAIR
✓ SUBSEQUENT REPORT Date of Work Completion: 12/31/2013	☐ CHANGE TO PREVIOUS PLANS	☐ CHANGE TUBING	☐ CHANGE WELL NAME
☐ SPUD REPORT Date of Spud:	☐ CHANGE WELL STATUS	☐ COMMINGLE PRODUCING FORMATIONS	☐ CONVERT WELL TYPE
☐ DRILLING REPORT Report Date:	☐ DEEPEN	☐ FRACTURE TREAT	☐ NEW CONSTRUCTION
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	☐ PRODUCTION START OR RESUME	☐ RECLAMATION OF WELL SITE	☐ RECOMPLETE DIFFERENT FORMATION
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	☐ TUBING REPAIR	☐ VENT OR FLARE	☐ WATER DISPOSAL
	☐ WATER SHUTOFF	☐ SI TA STATUS EXTENSION	☐ APD EXTENSION
	☐ WILDCAT WELL DETERMINATION	✓ OTHER	OTHER: Monthly Report-December 2

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Magnum Cavern Well #CW-6 (APD #4849 - API Well No. 43027500030000) Monthly Status Report for December, 2013: See Attachment for Summary. The drilling and related activities were performed in direct accordance with project specifications and Utah DOGM Application Permit to Drill requirements (See attachment).

Accepted by the Utah Division of Oil, Gas and Mining
FOR RECORD ONLY
January 14, 2014

NAME (PLEASE PRINT)	PHONE NUMBER	TITLE
Tiffany A. James	801 993-7001	Vice President Project Development
SIGNATURE		**DATE**
N/A		1/9/2014

RECEIVED: Jan. 09, 2014

Magnum Cavern Storage Well #CW-6 – December 2013 Monthly Status Report Summary

01 Dec. 2013:	Drill/Ream 21.5" Diameter Opener Hole in attempt to plumb the 12.25" pilot hole from 3,360-3,369' bgs. Trip out re-tool with 19" Diameter Bit/Drop BHA.
02-05 Dec. 2013:	Drill 19" Diameter Hole Opener from 3,369'-3,610' bgs.
06-08 Dec. 2013:	Drill/Ream using 24" Diameter Under-Reamer from 3,305'-3,610' bgs for 20" diameter casing string. **Total 24" Diameter Opener/Reaming Footage Drilled: 305 feet.**
08-09 Dec. 2013:	Complete Caliper Wireline Logging of Borehole.
09-11 Dec. 2013:	**Install 20" Diameter Casing. 20" Casing Landed at 3,598.52' bgs.**
12-13 Dec. 2013:	Weld on casing landing plate & trim down casing. **Cement 20" casing annulus via 5½" diam. full-hole float collar stab-in method.**
14-16 Dec. 2013:	Wait On Cement to Cure (Minimum 72-Hours).
16 Dec. 2013:	**Pressure Test 20" diameter casing.** • Test shut-in starting pressure: 1,045 psi (Barton Recorder) • Test ending pressure: 1,035 psi (Barton Recorder) • Test duration: 30 minutes • Pressure loss: 10 psi /less than 1%
16-18 Dec. 2013:	Ream out float collar, grout shoe & cement inside and below 20" diameter casing from 3,557'-3,610' bgs using 17½" dia. tri-cone bit.
18-21 Dec. 2013:	Drill/Ream Opener Hole using 22" diameter under-reamer from 3,615'- 3,720'. **Total 22" Diameter Opener/Reaming Footage Drilled: 105 feet** Upon trip-out of 22" tooling, it was found that part of the under-reamer ring and bit blades sheared off and were lost down-hole. Wireline log the 22" diameter boring & CBL logging of the 20" diameter casing.
22-23 Dec. 2013:	Drill out lost steel in bottom of borehole using a mill bit, then trip in with 17.5" tri-cone bit and clean, circulate borehole to 3,719.5' bgs.
24 Dec. 2013:	**Install 16" Diameter Casing. Casing Landed at 3,698.04' bgs.**
25 Dec. 2013:	**Cement 16" casing annulus via 5½" diam. full-hole float collar stab-in method.**
25-28 Dec. 2013:	Wait On Cement (Min. 72 hrs - casing pressure test; 96 hrs - cement reaming).
28-29 Dec. 2013:	**Nipple up BOP. Pressure Test 16" diameter casing.** • Test shut-in starting pressure: 580 psi (pressure gauge) • Test ending pressure: 555 psi (pressure gauge) • Test duration: 30 minutes • Pressure loss: 25 psi / 4.3% (pressure gauge)
29-30 Dec. 2013:	Trip in 14" diameter tri-cone bit and drop BHA, ream out float collar, grout shoe and cement inside and native below 16" diameter casing from 3,651'-3,724' bgs.
31 Dec. 2013:	**Pressure Test of 16" diameter casing seat.** • Test shut-in starting pressure: 980 psi (Barton Recorder) • Test ending pressure: 935 psi (Barton Recorder) • Test duration: 60 minutes • Pressure loss: 35 psi / 4.6% Trip in 12¼" diameter tri-cone bit and drop BHA, drill pilot hole 3,722'-3,730'
Notes:	**All Drilling, Wireline Logging, Casing Installation, Cementation & Pressure Test were completed successfully, and Conform to Project & Permit Specifications, Requirements and Tolerances. Corrective actions are currently being attempted for the borehole deviation.**

RECEIVED: Jan. 09, 2014

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

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7.UNIT or CA AGREEMENT NAME:

1. TYPE OF WELL
Gas Storage Well

8. WELL NAME and NUMBER: CW-6

2. NAME OF OPERATOR:
MAGNUM NGLS SOLUTION MINING LLC

9. API NUMBER: 43027500030000

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PHONE NUMBER: 801 993-7001 Ext

9. FIELD and POOL or WILDCAT: WILDCAT

4. LOCATION OF WELL
FOOTAGES AT SURFACE:
0442 FNL 0284 FWL
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:
Qtr/Qtr: NWNW Section: 26 Township: 15.0S Range: 07.0W Meridian: S

COUNTY: MILLARD

STATE: UTAH

11.
CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
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☑ SUBSEQUENT REPORT Date of Work Completion: 1/31/2014	☐ CHANGE TO PREVIOUS PLANS	☐ CHANGE TUBING	☐ CHANGE WELL NAME
☐ SPUD REPORT Date of Spud:	☐ CHANGE WELL STATUS	☐ COMMINGLE PRODUCING FORMATIONS	☐ CONVERT WELL TYPE
☐ DRILLING REPORT Report Date:	☐ DEEPEN	☐ FRACTURE TREAT	☐ NEW CONSTRUCTION
	☐ OPERATOR CHANGE	☐ PLUG AND ABANDON	☐ PLUG BACK
	☐ PRODUCTION START OR RESUME	☐ RECLAMATION OF WELL SITE	☐ RECOMPLETE DIFFERENT FORMATION
	☐ REPERFORATE CURRENT FORMATION	☐ SIDETRACK TO REPAIR WELL	☐ TEMPORARY ABANDON
	☐ TUBING REPAIR	☐ VENT OR FLARE	☐ WATER DISPOSAL
	☐ WATER SHUTOFF	☐ SI TA STATUS EXTENSION	☐ APD EXTENSION
	☐ WILDCAT WELL DETERMINATION	☑ OTHER	OTHER: Monthly Report-January 201

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Magnum Cavern Well #CW-6 (APD #4849 - API Well No. 43027500030000) Monthly Status Report for January 2014: See Attachment for Summary. The drilling and related activities were performed in direct accordance with project specifications and Utah DOGM Application Permit to Drill requirements.

Accepted by the Utah Division of Oil, Gas and Mining
FOR RECORD ONLY
February 07, 2014

NAME (PLEASE PRINT)	PHONE NUMBER	TITLE
Tiffany A. James	801 993-7001	Vice President Project Development

SIGNATURE	DATE
N/A	2/7/2014

RECEIVED: Feb. 07, 2014

Magnum Cavern Storage Well #CW-6 – January 2014 Monthly Status Report Summary

01 Jan., 2014:	Drill pilot hole with 12-¼" bit and drop BHA: 3,730'-3,740' Trip out due to difficult drilling over steel fragments in hole
02-05 Jan. 2014:	Trip in with mill bit. Mill steel with 12-1/4" mill bit and drop BHA 3,741'-3,744' Trip out due to lost circulation and recover some steel fragments Modify BHA and trip in with 12" x 3' long junk basket Mill 3,743.15'-3,745.65' bgs with junk basket Trip out junk basket, recover steel, trip back in with junk basket Mill 3,745.65'-3,747.0' bgs with junk basket Trip out and recover steel
05-12 Jan., 2014:	Trip back in with 12¼" tricone and drop BHA Drill 12¼" pilot hole 3,740'-5,000'bgs. Trip out. **(**Trip out once to replace old tricone bit during drilling.)
13 Jan., 2014:	Wireline geophysical logging of 12¼" pilot hole by Jet West Geophysical Services at 3,698' to 5,000' bgs
14 Jan., 2014:	Cement Bond Log and Casing Inspection Log of 16" casing by Halliburton Wireline Services.
14-16 Jan., 2014:	Trip in BHA and 17½" under-reamer (UR) Drill/Ream 12¼" pilot hole, 17½" UR/14¾" lead bit; 3,722'-3,763'. Trip out and inspect UR due to drilling on steel; trip back in. Drill/Ream 12¼" pilot hole, 17½" UR/14¾" lead bit; 3,763'-3,789'. Trip out; remove damaged UR;
16 Jan., 2014:	Trip in with 14" tricone while UR is being repaired. Ream 12¼" pilot hole with 14" tricone; 3,789'-3,850'
16-21 Jan., 2014 :	Trip out; assemble repaired UR with 14¾" lead bit; trip in. Drill/Ream 14" hole with 17½" UR/14¾" lead bit; 3,795'-3,850'. Drill/Ream 12¼" pilot hole;17½" UR/14¾" lead bit; 3,850'-4,340'. (Trip out once during reaming to replace UR blades)
21-22 Jan., 2014 :	Clean and circulate hole. Trip out 5 stands to ~3,780' bgs. Attempt to open under-reamer blades, unsuccessful. Trip out. Clean under-reamer blades. Trip in to 3,780'.
22-23 Jan., 2014:	Ream/clean hole with 17½" UR 3,780'-4,340'. Trip out. Remove UR and assemble BHA with 12¼" bit. Circulate down and clean hole with 12¼" tricone 4,340'-5,000'
23-26 Jan., 2014:	Complete wireline gyro-survey by Century Wireline Svcs. 0'-4,950' bgs Circulate and clean hole Trip out and break down all drill pipe stands. Cut down 16" casing. Nipple up and pressure test 13-3/8" casing spool (Weir Seaboard). Rig up B&L Casing Services. Install 100 joints of 13-3/8" casing; land at 4,322.48' bgs. Install and pressure test 8-5/8" casing spool (Weir Seaboard). Install 127 joints of 8-5/8" casing a depth of 4,952.04' feet bgs. Install flange over 8-5/8" casing seals and pressure test (Weir Seaboard). Start cleaning up site and rigging down LM-700 drill.
27-31 Jan., 2014:	Rig down and clean up site.
Notes:	**All drilling, wireline logging, casing installation, and pressure tests were completed successfully, and conform to project & permit specifications, requirements and tolerances.**

RECEIVED: Feb. 07, 2014

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

FORM 9

5.LEASE DESIGNATION AND SERIAL NUMBER: 51573-OBA

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7.UNIT or CA AGREEMENT NAME:

1. TYPE OF WELL
Gas Storage Well

8. WELL NAME and NUMBER: CW-6

2. NAME OF OPERATOR:
MAGNUM NGLS SOLUTION MINING LLC

9. API NUMBER: 43027500030000

3. ADDRESS OF OPERATOR:
3165 East Millrock Drive Suite 330 , Holladay, UT, 84121

PHONE NUMBER: 801 993-7001 Ext

9. FIELD and POOL or WILDCAT: WILDCAT

4. LOCATION OF WELL
FOOTAGES AT SURFACE:
0442 FNL 0284 FWL
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:
Qtr/Qtr: NWNW Section: 26 Township: 15.0S Range: 07.0W Meridian: S

COUNTY: MILLARD

STATE: UTAH

11.
CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
☐ NOTICE OF INTENT Approximate date work will start:	☐ ACIDIZE	☐ ALTER CASING	☐ CASING REPAIR
☑ SUBSEQUENT REPORT Date of Work Completion: 4/30/2014	☐ CHANGE TO PREVIOUS PLANS	☐ CHANGE TUBING	☐ CHANGE WELL NAME
☐ SPUD REPORT Date of Spud:	☐ CHANGE WELL STATUS	☐ COMMINGLE PRODUCING FORMATIONS	☐ CONVERT WELL TYPE
☐ DRILLING REPORT Report Date:	☐ DEEPEN	☐ FRACTURE TREAT	☐ NEW CONSTRUCTION
	☐ OPERATOR CHANGE	☐ PLUG AND ABANDON	☐ PLUG BACK
	☐ PRODUCTION START OR RESUME	☐ RECLAMATION OF WELL SITE	☐ RECOMPLETE DIFFERENT FORMATION
	☐ REPERFORATE CURRENT FORMATION	☐ SIDETRACK TO REPAIR WELL	☐ TEMPORARY ABANDON
	☐ TUBING REPAIR	☐ VENT OR FLARE	☐ WATER DISPOSAL
	☐ WATER SHUTOFF	☐ SI TA STATUS EXTENSION	☐ APD EXTENSION
	☐ WILDCAT WELL DETERMINATION	☑ OTHER	OTHER: Feb-April Period Report

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Magnum Cavern Well # CW-6 (APD # 4849- API Well No 43027500030000) Period Status Report for February - April 2014. Solution mining of CW-6 continued this period. At this time the open volume of the cavern is estimated to be 404,179 barrels. All solution mining activity this period has been performed in direct accordance with project specifications and Utah Division of Water Quality Class III Underground Injection Control Permit UTU-27-AP-9232389 requirements.

Accepted by the Utah Division of Oil, Gas and Mining
FOR RECORD ONLY
April 30, 2014

NAME (PLEASE PRINT)	PHONE NUMBER	TITLE
Tiffany A. James	801 993-7001	Vice President Project Development
SIGNATURE		**DATE**
N/A		4/30/2014

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

AMENDED REPORT ☐ (highlight changes) FORM 8

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5. LEASE DESIGNATION AND SERIAL NUMBER: 51573-OBA

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ DRY ☐ OTHER Storage Well

7. UNIT or CA AGREEMENT NAME:

b. TYPE OF WORK: NEW WELL ☑ HORIZ. LATS. ☐ DEEP-EN ☐ RE-ENTRY ☐ DIFF. RESVR. ☐ OTHER

8. WELL NAME and NUMBER: Magnum Cavern Well #CW-6

2. NAME OF OPERATOR: Magnum NGLs Solution Mining, LLC

9. API NUMBER: 4302750003

3. ADDRESS OF OPERATOR: 3165 E. Millrock Dr., St. CITY Holladay STATE UT ZIP 84121

PHONE NUMBER: (801) 993-7001

10 FIELD AND POOL, OR WILDCAT: Undesignated

4. LOCATION OF WELL (FOOTAGES)
AT SURFACE: 0442 FSL 0284 FWL
AT TOP PRODUCING INTERVAL REPORTED BELOW: N/A
AT TOTAL DEPTH: 0540 FSL 0260FWL

11. QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: NWNW 26 15S 7W S

12. COUNTY: Millard

13. STATE: UTAH

14. DATE SPUDDED:	15. DATE T.D. REACHED:	16. DATE COMPLETED:	ABANDONED ☐	READY TO PRODUCE ☐	17. ELEVATIONS (DF, RKB, RT, GL):
8/6/2013	1/23/2014	1/26/2014			4,611.5 ft. MSL - GL

18. TOTAL DEPTH: MD / TVD	19. PLUG BACK T.D.: MD / TVD	20. IF MULTIPLE COMPLETIONS, HOW MANY? *	21. DEPTH BRIDGE PLUG SET: MD / TVD
5,000 / 4,998		CSG Strings-8	

22. TYPE ELECTRIC AND OTHER MECHANICAL LOGS RUN (Submit copy of each)
E-Logs, Caliper, CBL/CAST, Spectral Gamma & Gyro-Survey
Hard Copies of Logs are enclosed.

23.
WAS WELL CORED? NO ☑ YES ☐ (Submit analysis)
WAS DST RUN? NO ☑ YES ☐ (Submit report)
DIRECTIONAL SURVEY? NO ☐ YES ☑ (Submit copy)

24. CASING AND LINER RECORD (Report all strings set in well)

HOLE SIZE	SIZE/GRADE	WEIGHT (#/ft.)	TOP (MD)	BOTTOM (MD)	STAGE CEMENTER DEPTH	CEMENT TYPE & NO. OF SACKS	SLURRY VOLUME (BBL)	CEMENT TOP **	AMOUNT PULLED
See Attached Summary									

25. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)

26. PRODUCING INTERVALS

FORMATION NAME	TOP (MD)	BOTTOM (MD)	TOP (TVD)	BOTTOM (TVD)
(A) N/A				
(B)				
(C)				
(D)				

27. PERFORATION RECORD

INTERVAL (Top/Bot - MD)	SIZE	NO. HOLES	PERFORATION STATUS
			Open ☐ Squeezed ☐
			Open ☐ Squeezed ☐
			Open ☐ Squeezed ☐
			Open ☐ Squeezed ☐

28. ACID, FRACTURE, TREATMENT, CEMENT SQUEEZE, ETC.

WAS WELL HYDRAULICALLY FRACTURED? YES ☐ NO ☑ IF YES -- DATE FRACTURED:

DEPTH INTERVAL	AMOUNT AND TYPE OF MATERIAL
N/A	

29. ENCLOSED ATTACHMENTS:

☑ ELECTRICAL/MECHANICAL LOGS ☐ GEOLOGIC REPORT ☐ DST REPORT ☑ DIRECTIONAL SURVEY
☐ SUNDRY NOTICE FOR PLUGGING AND CEMENT VERIFICATION ☐ CORE ANALYSIS ☐ OTHER:

30. WELL STATUS: Completed

(5/2013)

(CONTINUED ON BACK)

31. INITIAL PRODUCTION

INTERVAL A (As shown in item #26)

DATE FIRST PRODUCED:		TEST DATE:		HOURS TESTED:		TEST PRODUCTION RATES: →	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: →	OIL – BBL:	GAS – MCF:	WATER – BBL:	INTERVAL STATUS:

INTERVAL B (As shown in item #26)

DATE FIRST PRODUCED:		TEST DATE:		HOURS TESTED:		TEST PRODUCTION RATES: →	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: →	OIL – BBL:	GAS – MCF:	WATER – BBL:	INTERVAL STATUS:

INTERVAL C (As shown in item #26)

DATE FIRST PRODUCED:		TEST DATE:		HOURS TESTED:		TEST PRODUCTION RATES: →	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: →	OIL – BBL:	GAS – MCF:	WATER – BBL:	INTERVAL STATUS:

INTERVAL D (As shown in item #26)

DATE FIRST PRODUCED:		TEST DATE:		HOURS TESTED:		TEST PRODUCTION RATES: →	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: →	OIL – BBL:	GAS – MCF:	WATER – BBL:	INTERVAL STATUS:

32. DISPOSITION OF GAS (Sold, Used for Fuel, Vented, Etc.)

33. SUMMARY OF POROUS ZONES (Include Aquifers):

Show all important zones of porosity and contents thereof: Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

34. FORMATION (Log) MARKERS:

Formation	Top (MD)	Bottom (MD)	Descriptions, Contents, etc.	Name	Top (Measured Depth)
Unconfined Aqui	0	250	sand, clay & occassional gravel layers	Quaternary Sediments	0
Shallow Artesian	250	750	sand, clay & occassional gravel layers	Miocene Evaporites & Salt	3,479
Deep Artesian A	750	1,400	sand, clay & occassional gravel layers	Top of Salt Structure	3,479
Basement Artesi	1,400	3,400	sand, clay & occassional gravel layers		

35. ADDITIONAL REMARKS (Include plugging procedure)

Please see attached documents for: Well As-Built Diagram; Casing, Cementing & Pressure Testing Information; and,Geophysical Wireline Logging Summary. Also included are hard copies of the wireline logs.

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records.

NAME (PLEASE PRINT) TIFFANY A. JAMES TITLE VP Project Dev. + Govt Affairs

SIGNATURE DATE 2/24/14

This report must be submitted within 30 days of

- completing or plugging a new well
- drilling horizontal laterals from an existing well bore
- recompleting to a different producing formation
- reentering a previously plugged and abandoned well
- significantly deepening an existing well bore below the previous bottom-hole depth
- drilling hydrocarbon exploratory holes, such as core samples and stratigraphic tests

* ITEM 20: Show the number of completions if production is measured separately from two or more formations.

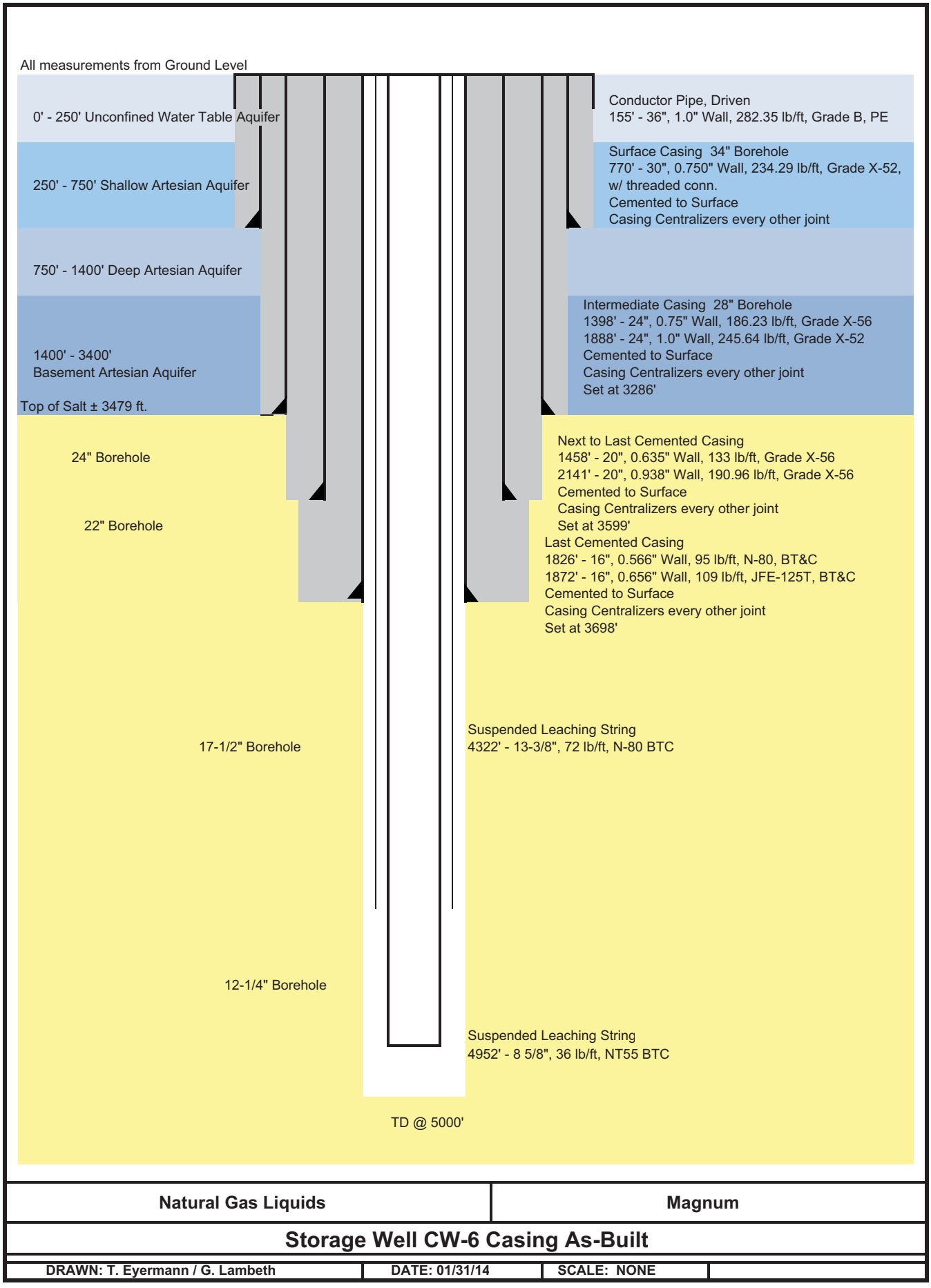
** ITEM 24: Cement Top – Show how reported top(s) of cement were determined (circulated (CIR), calculated (CAL), cement bond log (CBL), temperature survey (TS)).

Send to: Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801

Phone: 801-538-5340

Fax: 801-359-3940

(5/2013)



Natural Gas Liquids	Magnum

Storage Well CW-6 Casing As-Built

DRAWN: T. Eyermann / G. Lambeth	DATE: 01/31/14	SCALE: NONE	

RECEIVED: Feb. 25, 2014

Magnum Cavern Well CW-6
API Well No.: 43027500030000 - APD #4849
Summary of Casing Installations, As-Built and Pressure Tests

Borehole Diameter (in.) Depth Interval (Ft. bgs)	CSG Size/Grade	CSG Weight (lbs/ft)	Thread/Connector Type	Optimum Torque (ft/lbs)	CSG Top (ft.)	CSG Bottom (ft)	Method of Cement Placement - Depth	Cement Type / # of Sacks	Slurry Volume (Gal / BBLs)	Cement Top (ft)	BOP/Casing Pressure Test
55" Diameter 0.0' - 20.3'	48"-dia. x 0.375" Wall	N/A	N/A - Single Joint	N/A	0.0'	20.3'	Gravity feed from surface	Type I/II Neat Portland Cement w/ 2% calcium Class A Approx. 75 Sacks	570-Gallons / 13.6 BBLs	0.0'	N/A
44" Diameter 20.3' - 157'	36"-dia. x 0.75" Wall Grade X52M	282.35 lbs/ft	Welded	N/A	+0.1'	155.60'	Tremmie from bottom to top	Type I/II Neat Portland Cement w/ 0.5-1% HR-5 Retarder Class A Approx. 580.5 Sacks	4,160 Gallons / 99.1 BBLs	0.0'	N/A
34" Diameter 157' - 778'	30"-dia. x 0.75" Wall Grade X56/52M	234.29 lbs/ft	DDS Threaded Box x Pin	45,000	+0.1'	769.67'	Tremmie in Casing Annulus @~760' bgs - Pressure Grout	Type I/II Neat Portland Cement w/ ~0.6% HR-5 Retarder Class A Approx. 1,032 Sacks	11,230 Gallons / 267.4 BBLs	0.0'	N/A
28" Diameter 778' - 3,296'	A) 24"-dia. x 0.75" wall Grade X56 B) 24"-dia. x 1.0" wall Grade X56	A) 186.41 lbs/ft B) 245.87 lbs/ft	DDS Threaded Box x Pin	36,000	A) +0.5' B) 1,397.99'	A) 1,397.99' B) 3,286.02'	5½" Stab-in to Float Collar@3,246.5'- Pressure Grout	Ash Grove Type II-V Portland Cement Class A / 5,000 Sacks	44,100 Gallons / 1,050 BBLs	0.5'	Shut-in @1,270 psi. Duration:82-minutes. Pressure Loss: 20 psi/1.6%.
24" Diameter 3,296'- 3,605'	A) 20"-dia. x 0.625" Wall Grade X56 B) 20"-dia. x 1.0" Wall Grade X56	A) 128.20 lbs/ft B) 203.11 lbs/ft	DDS Threaded Box x Pin	30,000	A) +0.5' B) 1,458.51'	A) 1,458.51' B) 3,598.52'	5½" Stab-in to Float Collar@3,552.71'- Pressure Grout	Type G (Premium) Cement (37.2% salt, 0.2% air out) Class G / 1,865 Sacks	17,148.6 Gallons / 408.3 BBLs	0.5'	Shut-in @1,045 psi. Duration:30-minutes. Pressure Loss: 10 psi/1.0%.
22" Diameter 3,605'- 3,715'	A) 16"-dia. x 0.566" Wall NT-80 DE B) 16"-dia. x 0.656" Wall JTE 125T	A) 97.0 lbs/ft B) 109.0 lbs/ft	A) BTC B) BTC	~16,000	A) +4.65' B) 1,825.93'	A) 1,825.93' B) 3,698.04'	5½" Stab-in to Float Collar@3,650.48'- Pressure Grout	Type G (Premium) Cement (37.2% salt, 0.2% air out) Class G / 1,895 Sacks	17,440.5 Gallons / 415.25 BBLs	+2.0'	Casing Test: Shut-in @580 psi. Duration:30-minutes. Pressure Loss: 25 psi/4.3%. Casing Seat Test: Shut-in @ 980 psi. Duration: 60-minutes. Pressure Loss: 35 psi/4.6%
17.5" Diameter 3,715' - 4,340'	13-3/8"-dia. x 0.514" Wall NT-80 LHE	72.0 lbs/ft	Buttress Threaded BT&C	N/A	+6.2'	4,322.48'	N/A - Suspended CSG	N/A - Suspended CSG	N/A - Suspended CSG	N/A - Suspended CSG	N/A
12¼" Diameter 4,340' - 5,000' (TD)	8-5/8"-dia. x 0.352" Wall NT-55 HE	32.0 lbs/ft	API 8 Long Round LT&C	4,170	+9.1'	4,952.04'	N/A - Suspended CSG	N/A - Suspended CSG	N/A - Suspended CSG	N/A - Suspended CSG	N/A

Report of Compression Test Results

Client: Magnum Energy
3165 East Mill Rock Drive Suite 330
Holiday, UT 84121

Report Date: February 14, 2014
Project #: 74201409C0B200

Project Name: Magnum Cavern Well CW-6

Attn: Sam Quigley

Architect:
Engineer:

Project Manager:
Specimen Type: Grout, Cylinders ASTM C39-10

Mix and Field Data

CastDate: 12/25/2013
Contractor: Nabors
Type of Placement: Collar Connection
Inspector: Scott Bourcy
Location: Tremmie/Pressure Grout Through Drill Stem VIA 5 1/2" FH Stab-In to 16" Casing Float Collar
Strength: Required (f'c) : psi @ 28 Days

Mix #:
Supplier: Nabors Completions
Load: of
Truck #:
Ticket #:
Plant #: Site Batch
Batch Size (cy):
Water Added (gal):
Admixture: Class G Premium Cement with 37.2% Salt, H2O Ratio 5.0 Gal, Sack Volume=1.24 ft 3/Sack, Sample Collected at 240bbl Pumped

	Actual	Specs
Slump (in) ASTM C143-10:		
***Apparent Air Content (%) ASTM C231-10:**		
Unit Weight (pcf) ASTM C138-10:		
Sample Temperature (°F) ASTM C1064-08:	51	
Ambient Temperature (°F):	8	

Clouds Condition: Clear
Precipitation:
Wind Condition:

Time

Batch Time: 6:10
Sampled Time: 6:18
Finish Time: 6:20

Test Results

Lab Id	Spec Id	Date Received	Test Date	Age (Days)	Nominal Specimen Size	Actual Area (in^2)	Compressive (lbs)	Strength (psi)	Break Type	Field Cure	Type of Cap	Percent of Req.
2013861	A	12/26/2013	1/1/2014	7	2x4	3.14	8400	2670	3	☐		
	B	12/26/2013	1/22/2014	28	2x4	3.14	9680	3080	3	☐		
	C	12/26/2013	1/22/2014	28	2x4	3.14	9170	2920	3	☐		
	D	12/26/2013	2/19/2014	56	2x4	3.14				☐		

Final Curing Condition is unless otherwise noted.

Break Types: -- 1-Well form cones on both end and less than 1" of cracking through caps, 2-Well formed cone on one end and vertical cracks running through caps, 3-Columnar with vertical cracking through both ends, 4-Diagonal fracture with no cracking through ends, 5-Side fractures at top or bottom, 6-Similar to 5 but end of cylinder is pointed.

Type of Caps: -- (Un) Unbonded ASTM C1231, (Su) Sulfur Based Compound ASTM C617, (Gr) Grinding, (Gy) Gypsum

Note: All tests performed by the laboratory or its agents were in accordance with the applicable test methods.

*** Aggregate Correction Factor not supplied therefore not used in calculation of Air Content.**

Reviewed By: Marc Olsen

Distribution: Client ☑ File: ☑ Supplier: ☑ Other: Addressee (2)
Email: ☐

AMEC Earth Environmental, Inc.
9865 South 500 West
Sandy, UT 84070
Tel (801) 999-2002
Fax (801) 999-2102
www.amec.com

Report of Compression Test Results

Client: Magnum Energy
3165 East Mill Rock Drive Suite 330
Holiday, UT 84121

Report Date: February 14, 2014
Project #: 74201409C0B200

Project Name: Magnum Cavern Well CW-6

Attn: Sam Quigley

Architect:
Engineer:

Project Manager:
Specimen Type: Concrete ASTM C39-10

Mix and Field Data

CastDate: 12/13/2013
Type of Placement: Collar Connection
Location: Tremmie Bottom Up Through Float Collar in 20" Casing, 20" Casing Anulus
Strength: Required (f'c) : psi @ 28 Days

Mix #: Class G + Salt
Supplier: Nabors
Load: of
Truck #:
Ticket #:
Plant #: Site Batch
Batch Size (cy):
Water Added (gal):
Admixture: Salt, 37.2

Contractor: Nabors
Inspector: G Lambreth

	Actual	Specs
Slump (in) ASTM C143-10:		
*Apparent Air Content (%) ASTM C231-10:		
Unit Weight (pcf) ASTM C138-10:	16.2	16.3
Sample Temperature (°F) ASTM C1064-08:	49	
Ambient Temperature (°F):		

Clouds Condition:
Precipitation:
Wind Condition:

Time

Batch Time: 1:02
Sampled Time: 1:03
Finish Time: 1:04

Remarks: Temp -40

Test Results

Lab Id	Spec Id	Date Received	Test Date	Age (Days)	Nominal Specimen Size	Actual Area (in²)	Compressive (lbs)	Strength (psi)	Break Type	Field Cure	Type of Cap	Percent of Req.
2013848	A	12/14/2013	12/20/2013	7	2x4	3.14	7100	2260	2	☐	Un	
	B	12/14/2013	1/10/2014	28	2x4	3.14	16320	5190	2	☐	Un	
	C	12/14/2013	1/10/2014	28	2x4	3.14	14890	4740	2	☐	Un	
	D	12/14/2013	1/10/2014	28	2x4	3.14	13780	4390	3	☐	Un	

Final Curing Condition is Moisture Room unless otherwise noted.

Break Types: -- 1-Well form cones on both end and less than 1" of cracking through caps, 2-Well formed cone on one end and vertical cracks running through caps, 3-Columnar with vertical cracking through both ends, 4-Diagonal fracture with no cracking through ends, 5-Side fractures at top or bottom, 6-Similar to 5 but end of cylinder is pointed.

Type of Caps: -- (Un) Unbonded ASTM C1231, (Su) Sulfur Based Compound ASTM C617, (Gr) Grinding, (Gy) Gypsum

Note: All tests performed by the laboratory or its agents were in accordance with the applicable test methods.

*** Aggregate Correction Factor not supplied therefore not used in calculation of Air Content.**

Reviewed By: _____

Distribution: Client ☑ File: ☑ Supplier: ☑ Other: Addressee (2)
Email: ☐

AMEC Earth Environmental, Inc.
9865 South 500 West
Sandy, UT 84070
Tel (801) 999-2002
Fax (801) 999-2102
www.amec.com

Report of Compression Test Results

Client: Magnum Energy
3165 East Mill Rock Drive Suite 330
Holiday, UT 84121

Report Date: February 14, 2014
Project #: 74201409C0B200

Project Name: Magnum Cavern Well CW-6

Attn: Sam Quigley

Architect:
Engineer:

Project Manager:
Specimen Type: Grout, Cylinders ASTM C39-10

Mix and Field Data

CastDate: 11/20/2013
Type of Placement: Pressure Grout
Location: Tremmie Bottom -Up Through Float Collar in Lead Joint 24" Cassing
Strength: Required (f'c) : psi @ 28 Days

Contractor: Therma Source
Inspector: Greg Lambeth

Mix #: Ash Grove Type II-V
Supplier: Therma Source
Load: of
Truck #:
Ticket #:
Plant #: Site Batch
Batch Size (cy):
Water Added (gal):
Admixture:

	Actual	Specs
Slump (in) ASTM C143-10:		
*Apparent Air Content (%) ASTM C231-10:		
Unit Weight (pcf) ASTM C138-10:		
Sample Temperature (°F) ASTM C1064-08:	64	
Ambient Temperature (°F):	59	

Clouds Condition: Cloudy
Precipitation: Light Rain
Wind Condition:

Time

Batch Time: 15:30
Sampled Time: 15:32
Finish Time: 15:35

Test Results

Lab Id	Spec Id	Date Received	Test Date	Age (Days)	Nominal Specimen Size	Actual Area (in²)	Compressive (lbs)	Strength (psi)	Break Type	Field Cure	Type of Cap	Percent of Req.
2013809	A	11/21/2013	11/27/2013	7	2x4	3.14	9980	3180	3	☐	Un	
	B	11/21/2013	12/18/2013	28	2x4	3.14	10430	3320	3	☐	Un	
	C	11/21/2013	12/18/2013	28	2x4	3.14	10330	3290	3	☐	Un	
	D	11/21/2013	12/18/2013	28	2x4	3.14	14690	4680	3	☐	Un	

Final Curing Condition is unless otherwise noted.

Break Types: – 1-Well form cones on both end and less than 1" of cracking through caps, 2-Well formed cone on one end and vertical cracks running through caps, 3-Columnar with vertical cracking through both ends, 4-Diagonal fracture with no cracking through ends, 5-Side fractures at top or bottom, 6-Similar to 5 but end of cylinder is pointed.

Type of Caps: – (Un) Unbonded ASTM C1231, (Su) Sulfur Based Compound ASTM C617, (Gr) Grinding, (Gy) Gypsum

Note: All tests performed by the laboratory or its agents were in accordance with the applicable test methods.

*** Aggregate Correction Factor not supplied therefore not used in calculation of Air Content.**

Reviewed By:_____

Distribution: Client ☑ File: ☑ Supplier: ☑ Other: Addressee (2)
Email: ☐

AMEC Earth Environmental, Inc.
9865 South 500 West
Sandy, UT 84070
Tel (801) 999-2002
Fax (801) 999-2102
www.amec.com

Report of Compression Test Results

Client: Magnum Energy
3165 East Mill Rock Drive Suite 330
Holiday, UT 84121

Report Date: September 25, 2013
Project #: 74201409C0B200

Project Name: Magnum Cavern Well CW-6

Attn: Sam Quigley

Architect:
Engineer:

Project Manager:
Specimen Type: Grout, Cylinders ASTM C39-10

Mix and Field Data

CastDate: 8/26/2013
Type of Placement: Casing Cement
Location: CW6 30" Casing
Strength: Required (f'c) : psi @ 28 Days

Contractor: Boart Longyear
Inspector: Nick Anderson

Mix #: Type I/II
Supplier: Quikrete
Load: of
Truck #:
Ticket #:
Plant #: Site Batch
Batch Size (cy):
Water Added (gal):
Admixture: HR-5 RETARDER

	Actual	Specs
Slump (in) ASTM C143-10:		
*Apparent Air Content (%) ASTM C231-10:		
Unit Weight (pcf) ASTM C138-10:		
Sample Temperature (°F) ASTM C1064-08:		
Ambient Temperature (°F):	72	

Clouds Condition:
Precipitation:
Wind Condition:

Time

Batch Time:
Sampled Time:
Finish Time:

Remarks: Batch #5, Mud Weight 15.3lbs/gal

Test Results

Lab Id	Spec Id	Date Received	Test Date	Age (Days)	Nominal Specimen Size	Actual Area (in²)	Compressive (lbs)	Strength (psi)	Break Type	Field Cure	Type of Cap	Percent of Req.
2013520	A	8/27/2013	9/2/2013	7	2x4	3.14	9980	3180	2	☐		
	B	8/27/2013	9/23/2013	28	2x4	3.14	13070	4160		☐		
	C	8/27/2013	9/23/2013	28	2x4	3.14	15010	4780		☐		
	D	8/27/2013	9/23/2013	28	2x4	3.14	14610	4650		☐		

Final Curing Condition is Moisture Room unless otherwise noted.

Break Types: -- 1-Well form cones on both end and less than 1" of cracking through caps, 2-Well formed cone on one end and vertical cracks running through caps, 3-Columnar with vertical cracking through both ends, 4-Diagonal fracture with no cracking through ends, 5-Side fractures at top or bottom, 6-Similar to 5 but end of cylinder is pointed.

Type of Caps: -- (Un) Unbonded ASTM C1231, (Su) Sulfur Based Compound ASTM C617, (Gr) Grinding, (Gy) Gypsum

Note: All tests performed by the laboratory or its agents were in accordance with the applicable test methods.

* Aggregate Correction Factor not supplied therefore not used in calculation of Air Content.

Reviewed By: _____

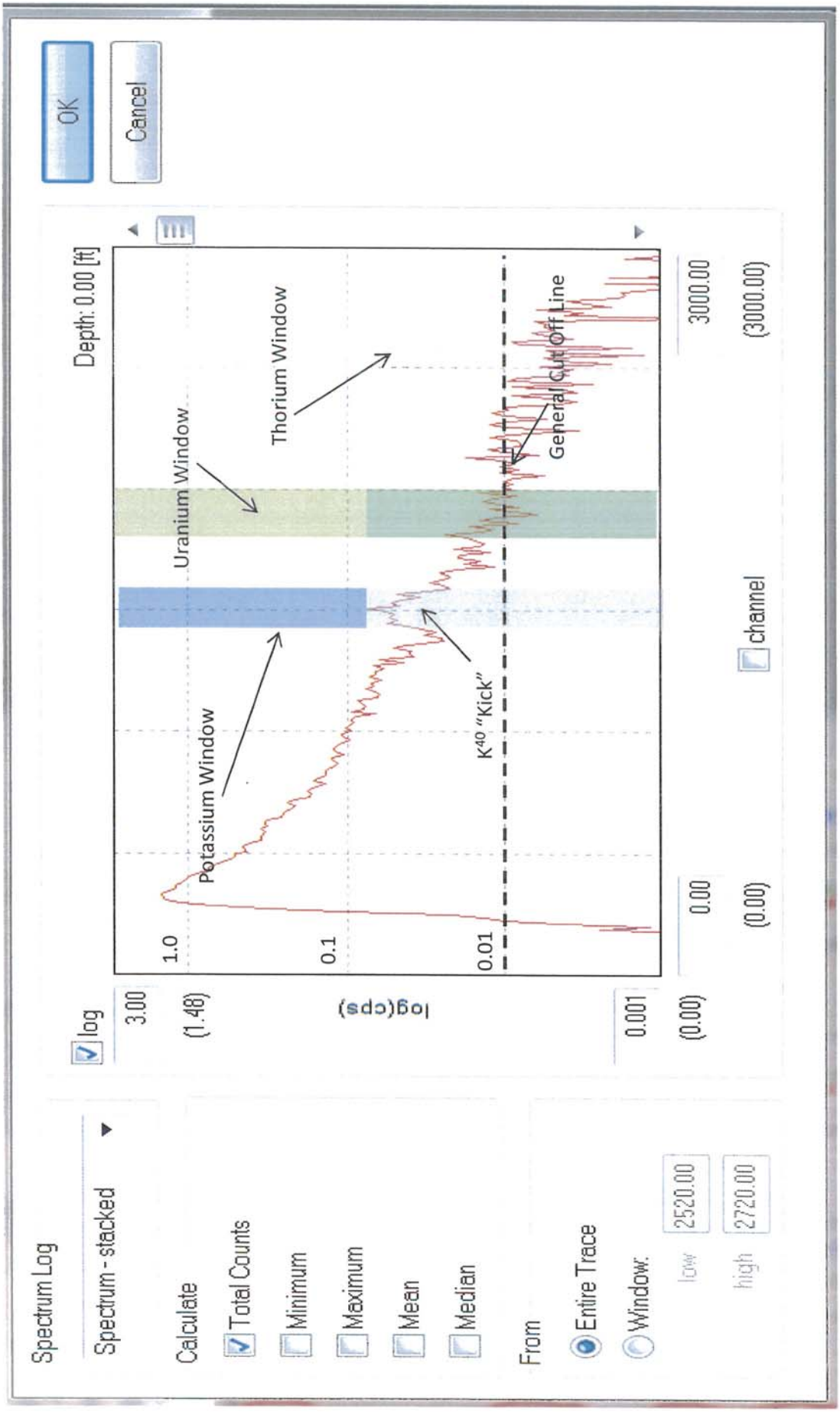
Distribution: Client ☑ File: ☑ Supplier: ☑ Other: Addressee (2)
Email: ☐

AMEC Earth Environmental, Inc.
9865 South 500 West
Sandy, UT 84070
Tel (801) 999-2002
Fax (801) 999-2102
www.amec.com

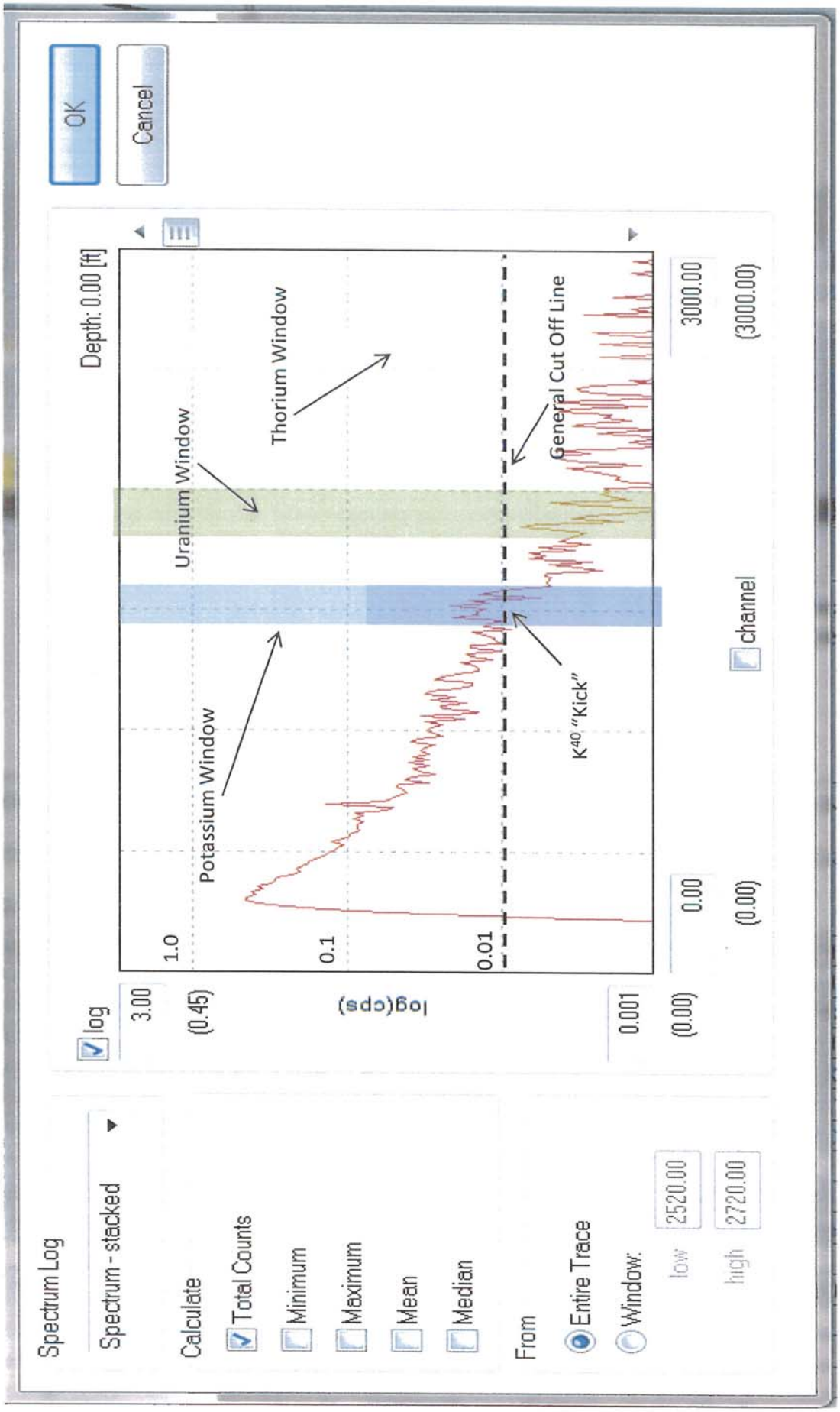
Magnum NGLs Cavern Well #CW-6 - Geophysical Wireline Log Summary

Reference Log	Date Logging Completed	Log Type	Depth - Log Interval (ft bgs)	Logging Company	Purpose
A	14-Aug-13	E-Log	155'-785'	Jet West Geophysical Services	30" CSG String
B	22-Aug-13	Caliper	0' - 778'	Jet West Geophysical Services	30" CSG String
C	27-Oct-13	E-Log	778'-3,296'	Jet West Geophysical Services	24" CSG String
D	18-Nov-13	Caliper	0-3,296'	Century Wireline Services	24" CSG String
E	28-Nov-13	E-Log	3,286'-3,720'	Jet West Geophysical Services	20" & 16" CSG Strings
F	9-Dec-13	Caliper	1,250' - 3,610'	Century Wireline Services	20" CSG String
G	21-Dec-13	Collar Locator	45'-3,736'	Century Wireline Services	20" CSG String
H	21-Dec-13	Cement Bond	2,925'-3,682'	Century Wireline Services	20" CSG String
I	13-Jan-14	E-Log & Spectral Gamma	3,698' - ~5,000'	Jet West Geophysical Services	13-5/8" & 8-5/8" Suspended CCG Strings
J	23-Jan-14	Gyro-Survey	0' - 4,950'	Century Wireline Services	Borehole Orientation
K	14-Jan-14	Cement Bond & Casing Inspection	743' - 3,698'	Halliburton	16" CSG String
		MIT	***Note:** Mechanical Integrity Testing Data/Logs to be addressed under sperate cover.		

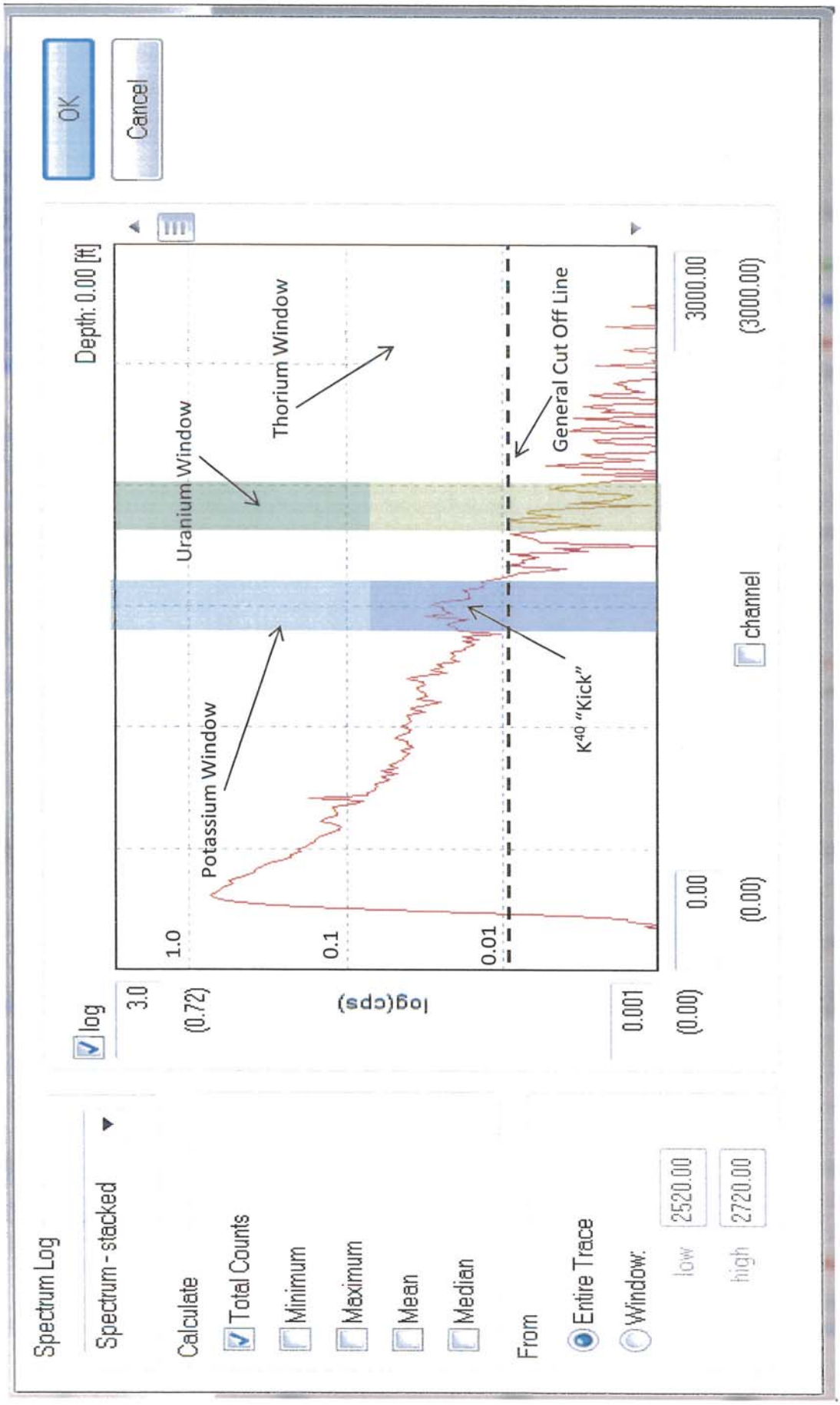
CW-6 Window at 4847 Feet



CW-6 Window at 4067.5 Feet



CW-6 Window at 3833 Feet



* COMPU-LOG MINE COORDINATES * *

CLIENT : MAGNUM NGLS HOLE ID. : CW-6
FIELD OFFICE : BOART DATE OF LOG : 1/23/2014
DATA FROM : 26 PROBE : 9097 , 4447
MAG. DECL. : 12.6 DEPTH UNITS : FEET

LOG: CAVERNWELL_01-23-14_22-44_9097_.20_-11.60_4936.60_GYRO.log

Survey Reference Point : SURVEY T

Mine Coordinates Location:
North/South: 204775
East/West: 500311.7
Elevation: 4612.7

FINAL DATA

Meas. Depth (feet)	SANG	SANGB (degrees)	Disp (feet)	TVD	Zero Coordinates N/S	E/W	TVD	Mine Coordinates N/S	E/W
0	0.2	93.1	0	0	0	0	-4612.7	204775	500311.7
50	0.1	80.9	0.1	50	0	0.1	-4562.7	204774.9	500311.8
100	0.1	106.3	0.2	100	-0.1	0.2	-4512.7	204774.9	500311.9
150	0.1	92.4	0.3	150	-0.1	0.3	-4462.7	204774.9	500312
200	0.1	148	0.4	200	-0.1	0.4	-4412.7	204774.9	500312.1
250	0.2	273.4	0.3	250	-0.2	0.3	-4362.7	204774.8	500312
300	0.3	251.1	0.1	300	-0.1	0.1	-4312.7	204774.9	500311.8
350	0.3	142.3	0.2	350	-0.2	0	-4262.7	204774.7	500311.7
400	0.3	60.9	0.3	400	-0.3	0.2	-4212.7	204774.7	500311.9
450	0.4	358	0.4	450	0	0.4	-4162.7	204775	500312.1
500	0.1	156.3	0.3	500	0.1	0.3	-4112.7	204775.1	500312
550	0.6	36.8	0.6	550	0.2	0.6	-4062.7	204775.1	500312.3
600	0.2	183.9	0.6	600	0.4	0.5	-4012.7	204775.3	500312.2
650	0.6	305.8	0.9	650	0.7	0.6	-3962.7	204775.6	500312.3
700	0.3	68.2	0.9	700	0.7	0.5	-3912.7	204775.7	500312.2
750	0.6	313	1.2	750	1.1	0.5	-3862.7	204776.1	500312.2
800	0.4	64.2	1.3	800	1.2	0.4	-3812.7	204776.1	500312.1
850	0.4	279.2	1.6	850	1.6	0.3	-3762.7	204776.6	500312
900	0.5	37.5	1.7	900	1.6	0.3	-3712.7	204776.6	500312
950	0.4	271.8	2.1	950	2.1	0.1	-3662.7	204777	500311.9
1000	0.5	26.8	2.2	1000	2.2	0.2	-3612.7	204777.1	500311.9
1050	0.2	243.5	2.5	1050	2.5	0	-3562.7	204777.5	500311.7
1100	0.8	346	2.8	1100	2.8	0.1	-3512.7	204777.8	500311.9
1150	0.5	49.5	2.9	1150	2.9	0	-3462.7	204777.9	500311.7
1200	0.1	227.6	3.3	1200	3.3	-0.2	-3412.7	204778.2	500311.5
1250	0.5	268.7	3.7	1250	3.7	-0.2	-3362.7	204778.6	500311.5

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1300	0.6	283.9	3.9	1300	3.9	-0.3	-3312.7	204778.8	500311.4
1350	0.6	37.6	4	1350	4	-0.2	-3262.7	204779	500311.5
1400	0.2	234	4.4	1400	4.4	-0.4	-3212.8	204779.3	500311.3
1450	1	335.1	4.8	1450	4.8	-0.3	-3162.8	204779.7	500311.4
1500	0.6	41.3	5	1500	4.9	-0.5	-3112.8	204779.9	500311.3
1550	0.2	151.5	5.4	1549.9	5.3	-0.6	-3062.8	204780.3	500311.1
1600	0.7	293.2	5.8	1599.9	5.8	-0.7	-3012.8	204780.7	500311.1
1650	1	335.4	6.1	1649.9	6.1	-0.7	-2962.8	204781	500311.1
1700	0.9	9.2	6.4	1699.9	6.3	-0.7	-2912.8	204781.3	500311
1750	0.9	14.2	6.8	1749.9	6.8	-0.8	-2862.8	204781.7	500310.9
1800	0.9	358.7	7.2	1799.9	7.2	-0.9	-2812.8	204782.1	500310.9
1850	0.7	36.2	7.7	1849.9	7.6	-0.9	-2762.8	204782.6	500310.8
1900	0.5	23.5	8.3	1899.9	8.2	-1	-2712.8	204783.2	500310.7
1950	0.5	313.6	8.9	1949.9	8.8	-1	-2662.8	204783.8	500310.7
2000	0.7	309.5	9.5	1999.9	9.5	-1	-2612.8	204784.4	500310.7
2050	0.7	318	10.1	2049.9	10.1	-1	-2562.8	204785	500310.7
2100	1.2	358	10.6	2099.9	10.6	-0.8	-2512.8	204785.6	500310.9
2150	0.8	31.4	11.2	2149.9	11.2	-0.9	-2462.8	204786.1	500310.8
2200	0.4	15.7	12	2199.9	11.9	-0.9	-2412.8	204786.9	500310.8
2250	1.2	336.8	12.7	2249.9	12.7	-0.8	-2362.8	204787.6	500310.9
2300	1.4	0.3	13.3	2299.9	13.3	-0.7	-2312.8	204788.3	500311
2350	1.1	20.7	14.1	2349.9	14.1	-0.8	-2262.8	204789	500310.9
2400	1.5	341.5	15.1	2399.9	15.1	-0.7	-2212.9	204790.1	500311
2450	0.8	327.8	16.1	2449.8	16.1	-1	-2162.9	204791	500310.8
2500	1.6	340.7	17	2499.8	17	-1	-2112.9	204792	500310.7
2550	1.5	5.8	18	2549.8	17.9	-1.1	-2062.9	204792.9	500310.7
2600	0.9	339	19.1	2599.8	19	-1.4	-2012.9	204794	500310.3
2650	1.4	322.3	20.3	2649.8	20.3	-1.6	-1962.9	204795.2	500310.2
2700	1.7	5	21.4	2699.8	21.3	-1.8	-1912.9	204796.3	500309.9
2750	1.2	340.9	22.7	2749.8	22.6	-2	-1863	204797.6	500309.7
2800	2	343.9	24	2799.7	23.9	-2.1	-1813	204798.9	500309.6
2850	1.8	3.7	25.3	2849.7	25.2	-2.4	-1763	204800.1	500309.3
2900	1.2	356.5	26.6	2899.7	26.5	-2.7	-1713	204801.4	500309
2950	1.9	3.1	28.2	2949.7	28.1	-2.7	-1663	204803	500309
3000	1.9	1.3	29.8	2999.7	29.7	-2.7	-1613.1	204804.7	500309
3050	1.5	345.2	31.3	3049.6	31.2	-2.8	-1563.1	204806.1	500308.9
3100	2.1	345.9	32.8	3099.6	32.6	-3.3	-1513.1	204807.6	500308.4
3150	2	5.2	34.8	3149.6	34.6	-3.7	-1463.1	204809.6	500308.1
3200	2.4	349.4	36.4	3199.5	36.2	-3.9	-1413.2	204811.1	500307.8
3250	1.6	347.8	38.2	3249.5	38	-4.1	-1363.2	204812.9	500307.6
3300	2.6	352.9	39.9	3299.5	39.7	-4.7	-1313.2	204814.6	500307.1
3350	2.2	342.7	42	3349.4	41.7	-5	-1263.3	204816.7	500306.7
3400	2.8	353.6	44.2	3399.4	43.9	-5.5	-1213.3	204818.8	500306.2
3450	2.5	342.9	46.5	3449.3	46.1	-5.9	-1163.4	204821	500305.9
3500	2.7	351.8	48.8	3499.3	48.4	-6.7	-1113.4	204823.3	500305
3550	2.9	334.6	51.2	3549.2	50.6	-7.3	-1063.5	204825.6	500304.4
3600	2.8	340.2	53.8	3599.1	53.2	-7.9	-1013.6	204828.1	500303.8

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3650	3	350.2	56.3	3649.1	55.7	-8.5	-963.6	204830.6	500303.2
3700	2.5	350.9	58.8	3699	58.1	-9.3	-913.7	204833.1	500302.4
3750	2.4	329.5	61	3749	60.1	-10	-863.8	204835.1	500301.7
3800	2.5	333.5	63.2	3798.9	62.3	-10.5	-813.8	204837.3	500301.2
3850	2.7	339.9	65.3	3848.9	64.3	-11.3	-763.8	204839.3	500300.4
3900	2.4	332.5	67.4	3898.8	66.4	-11.8	-713.9	204841.4	500299.9
3950	2.6	339.7	69.4	3948.8	68.3	-12.5	-663.9	204843.2	500299.2
4000	2.2	330.8	71.4	3998.7	70.2	-13	-614	204845.1	500298.7
4050	2.6	344.7	73.2	4048.7	71.9	-13.8	-564	204846.9	500297.9
4100	2.4	337.1	75.1	4098.7	73.7	-14.4	-514.1	204848.7	500297.3
4150	2.7	345	77	4148.6	75.5	-15	-464.1	204850.5	500296.7
4200	2	331	78.7	4198.6	77.2	-15.5	-414.1	204852.1	500296.2
4250	2	347.7	80.4	4248.6	78.8	-16	-364.2	204853.7	500295.7
4300	1.7	334.2	82	4298.5	80.3	-16.5	-314.2	204855.2	500295.2
4350	2	347.8	83.8	4348.5	82.1	-17	-264.2	204857	500294.7
4400	1.6	332.2	85.4	4398.5	83.6	-17.6	-214.2	204858.5	500294.1
4450	2.2	334.2	87	4448.4	85.1	-18.1	-164.3	204860	500293.6
4500	1.5	327	88.6	4498.4	86.7	-18.6	-114.3	204861.6	500293.2
4550	2.2	348	90.1	4548.4	88.1	-19	-64.3	204863	500292.7
4600	1.6	327.6	91.4	4598.4	89.3	-19.2	-14.3	204864.3	500292.5
4650	1.1	341.6	92.9	4648.3	90.8	-19.5	35.6	204865.7	500292.2
4700	1.6	345.5	94.1	4698.3	91.9	-20.1	85.6	204866.9	500291.7
4750	1.4	347.9	95.2	4748.3	93	-20.6	135.6	204867.9	500291.1
4800	1.2	335.7	96.4	4798.3	94.1	-21.2	185.6	204869	500290.5
4850	1.4	341.6	97.5	4848.3	94.9	-22	235.6	204869.9	500289.7
4900	1.1	315.6	98.7	4898.3	96	-22.7	285.6	204871	500289
4936.6	1.6	319.3	99.6	4934.8	96.9	-23.3	322.1	204871.8	500288.4
Closure -		Zero	Coord.:	99.6 @		346.5			
	Mine	Coord:540(	@	1.2					

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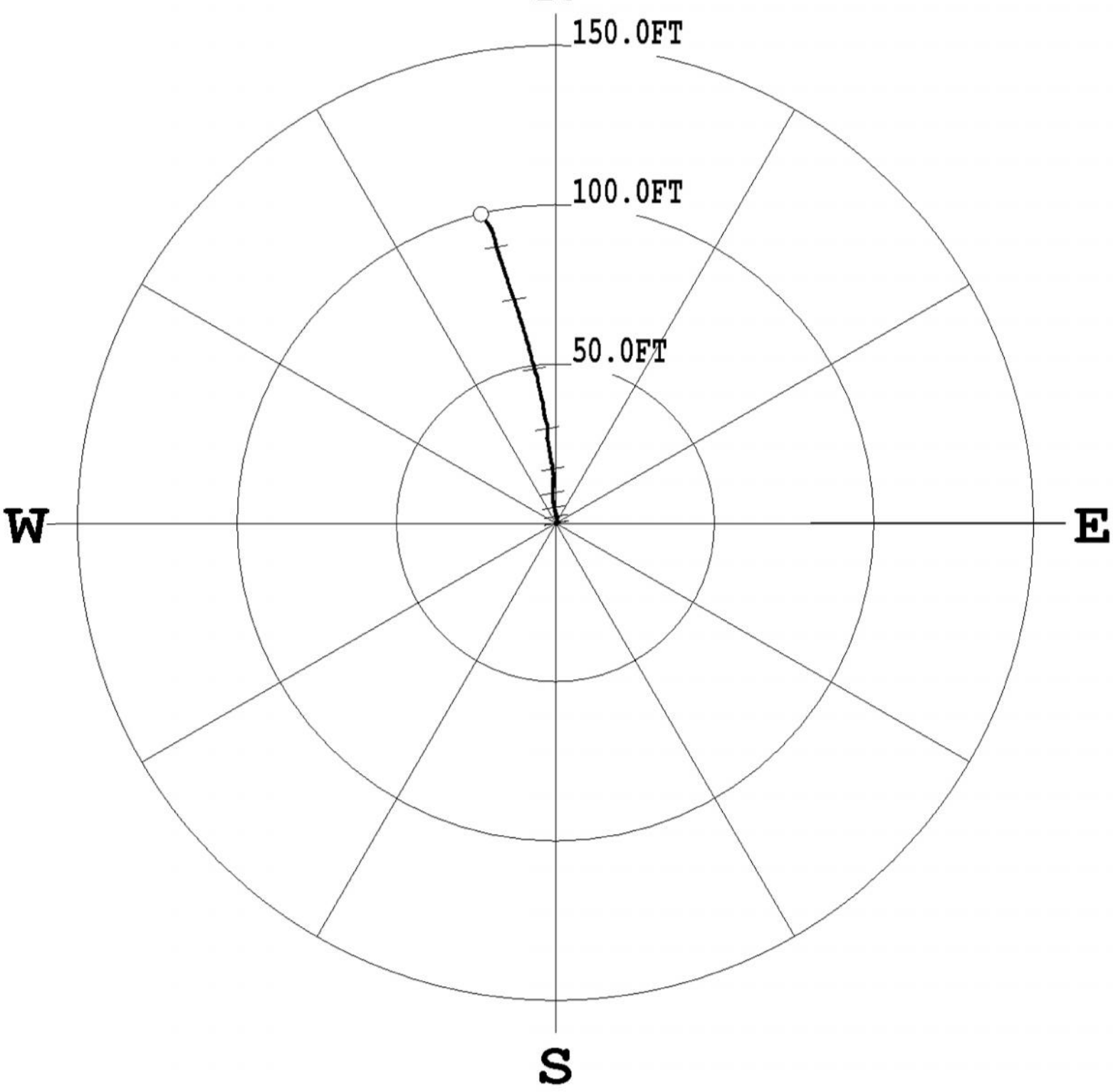
PLAN VIEW
COMPU-LOG DEVIATION

CLIENT: MAGNUM NGLS
LOCATION: UNDESIGNATED
HOLE ID: CAVERN WELL CW-6
DATE OF LOG: 01/23/14
PROBE: 9097 4447

MAG DECL: 12.6

SCALE: 50 FT/IN
TRUE DEPTH: 4934.85 FT
AZIMUTH: 346.5
DISTANCE: 99.6 FT
+ = 500 FT INCR
○ = BOTTOM OF HOLE



RECEIVED: Apr. 30, 2014

* COMPU-LOG MINE COORDINATES * *

CLIENT : MAGNUM NGLS HOLE ID. : CW-6
FIELD OFFICE : BOART DATE OF LOG : 1/23/2014
DATA FROM : 26 PROBE : 9097 , 4447
MAG. DECL. : 12.6 DEPTH UNITS : FEET

LOG: CAVERNWELL_01-23-14_22-44_9097_.20_-11.60_4936.60_GYRO.log

Survey Reference Point : SURVEY T

Mine Coordinates Location:
North/South: 204775
East/West: 500311.7
Elevation: 4612.7

FINAL DATA

Meas. Depth (feet)	SANG	SANGB (degrees)	Disp (feet)	TVD	Zero Coordinates N/S	E/W	TVD	Mine Coordinates N/S	E/W
0	0.2	93.1	0	0	0	0	-4612.7	204775	500311.7
50	0.1	80.9	0.1	50	0	0.1	-4562.7	204774.9	500311.8
100	0.1	106.3	0.2	100	-0.1	0.2	-4512.7	204774.9	500311.9
150	0.1	92.4	0.3	150	-0.1	0.3	-4462.7	204774.9	500312
200	0.1	148	0.4	200	-0.1	0.4	-4412.7	204774.9	500312.1
250	0.2	273.4	0.3	250	-0.2	0.3	-4362.7	204774.8	500312
300	0.3	251.1	0.1	300	-0.1	0.1	-4312.7	204774.9	500311.8
350	0.3	142.3	0.2	350	-0.2	0	-4262.7	204774.7	500311.7
400	0.3	60.9	0.3	400	-0.3	0.2	-4212.7	204774.7	500311.9
450	0.4	358	0.4	450	0	0.4	-4162.7	204775	500312.1
500	0.1	156.3	0.3	500	0.1	0.3	-4112.7	204775.1	500312
550	0.6	36.8	0.6	550	0.2	0.6	-4062.7	204775.1	500312.3
600	0.2	183.9	0.6	600	0.4	0.5	-4012.7	204775.3	500312.2
650	0.6	305.8	0.9	650	0.7	0.6	-3962.7	204775.6	500312.3
700	0.3	68.2	0.9	700	0.7	0.5	-3912.7	204775.7	500312.2
750	0.6	313	1.2	750	1.1	0.5	-3862.7	204776.1	500312.2
800	0.4	64.2	1.3	800	1.2	0.4	-3812.7	204776.1	500312.1
850	0.4	279.2	1.6	850	1.6	0.3	-3762.7	204776.6	500312
900	0.5	37.5	1.7	900	1.6	0.3	-3712.7	204776.6	500312
950	0.4	271.8	2.1	950	2.1	0.1	-3662.7	204777	500311.9
1000	0.5	26.8	2.2	1000	2.2	0.2	-3612.7	204777.1	500311.9
1050	0.2	243.5	2.5	1050	2.5	0	-3562.7	204777.5	500311.7
1100	0.8	346	2.8	1100	2.8	0.1	-3512.7	204777.8	500311.9
1150	0.5	49.5	2.9	1150	2.9	0	-3462.7	204777.9	500311.7
1200	0.1	227.6	3.3	1200	3.3	-0.2	-3412.7	204778.2	500311.5
1250	0.5	268.7	3.7	1250	3.7	-0.2	-3362.7	204778.6	500311.5

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1300	0.6	283.9	3.9	1300	3.9	-0.3	-3312.7	204778.8	500311.4
1350	0.6	37.6	4	1350	4	-0.2	-3262.7	204779	500311.5
1400	0.2	234	4.4	1400	4.4	-0.4	-3212.8	204779.3	500311.3
1450	1	335.1	4.8	1450	4.8	-0.3	-3162.8	204779.7	500311.4
1500	0.6	41.3	5	1500	4.9	-0.5	-3112.8	204779.9	500311.3
1550	0.2	151.5	5.4	1549.9	5.3	-0.6	-3062.8	204780.3	500311.1
1600	0.7	293.2	5.8	1599.9	5.8	-0.7	-3012.8	204780.7	500311.1
1650	1	335.4	6.1	1649.9	6.1	-0.7	-2962.8	204781	500311.1
1700	0.9	9.2	6.4	1699.9	6.3	-0.7	-2912.8	204781.3	500311
1750	0.9	14.2	6.8	1749.9	6.8	-0.8	-2862.8	204781.7	500310.9
1800	0.9	358.7	7.2	1799.9	7.2	-0.9	-2812.8	204782.1	500310.9
1850	0.7	36.2	7.7	1849.9	7.6	-0.9	-2762.8	204782.6	500310.8
1900	0.5	23.5	8.3	1899.9	8.2	-1	-2712.8	204783.2	500310.7
1950	0.5	313.6	8.9	1949.9	8.8	-1	-2662.8	204783.8	500310.7
2000	0.7	309.5	9.5	1999.9	9.5	-1	-2612.8	204784.4	500310.7
2050	0.7	318	10.1	2049.9	10.1	-1	-2562.8	204785	500310.7
2100	1.2	358	10.6	2099.9	10.6	-0.8	-2512.8	204785.6	500310.9
2150	0.8	31.4	11.2	2149.9	11.2	-0.9	-2462.8	204786.1	500310.8
2200	0.4	15.7	12	2199.9	11.9	-0.9	-2412.8	204786.9	500310.8
2250	1.2	336.8	12.7	2249.9	12.7	-0.8	-2362.8	204787.6	500310.9
2300	1.4	0.3	13.3	2299.9	13.3	-0.7	-2312.8	204788.3	500311
2350	1.1	20.7	14.1	2349.9	14.1	-0.8	-2262.8	204789	500310.9
2400	1.5	341.5	15.1	2399.9	15.1	-0.7	-2212.9	204790.1	500311
2450	0.8	327.8	16.1	2449.8	16.1	-1	-2162.9	204791	500310.8
2500	1.6	340.7	17	2499.8	17	-1	-2112.9	204792	500310.7
2550	1.5	5.8	18	2549.8	17.9	-1.1	-2062.9	204792.9	500310.7
2600	0.9	339	19.1	2599.8	19	-1.4	-2012.9	204794	500310.3
2650	1.4	322.3	20.3	2649.8	20.3	-1.6	-1962.9	204795.2	500310.2
2700	1.7	5	21.4	2699.8	21.3	-1.8	-1912.9	204796.3	500309.9
2750	1.2	340.9	22.7	2749.8	22.6	-2	-1863	204797.6	500309.7
2800	2	343.9	24	2799.7	23.9	-2.1	-1813	204798.9	500309.6
2850	1.8	3.7	25.3	2849.7	25.2	-2.4	-1763	204800.1	500309.3
2900	1.2	356.5	26.6	2899.7	26.5	-2.7	-1713	204801.4	500309
2950	1.9	3.1	28.2	2949.7	28.1	-2.7	-1663	204803	500309
3000	1.9	1.3	29.8	2999.7	29.7	-2.7	-1613.1	204804.7	500309
3050	1.5	345.2	31.3	3049.6	31.2	-2.8	-1563.1	204806.1	500308.9
3100	2.1	345.9	32.8	3099.6	32.6	-3.3	-1513.1	204807.6	500308.4
3150	2	5.2	34.8	3149.6	34.6	-3.7	-1463.1	204809.6	500308.1
3200	2.4	349.4	36.4	3199.5	36.2	-3.9	-1413.2	204811.1	500307.8
3250	1.6	347.8	38.2	3249.5	38	-4.1	-1363.2	204812.9	500307.6
3300	2.6	352.9	39.9	3299.5	39.7	-4.7	-1313.2	204814.6	500307.1
3350	2.2	342.7	42	3349.4	41.7	-5	-1263.3	204816.7	500306.7
3400	2.8	353.6	44.2	3399.4	43.9	-5.5	-1213.3	204818.8	500306.2
3450	2.5	342.9	46.5	3449.3	46.1	-5.9	-1163.4	204821	500305.9
3500	2.7	351.8	48.8	3499.3	48.4	-6.7	-1113.4	204823.3	500305
3550	2.9	334.6	51.2	3549.2	50.6	-7.3	-1063.5	204825.6	500304.4
3600	2.8	340.2	53.8	3599.1	53.2	-7.9	-1013.6	204828.1	500303.8

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3650	3	350.2	56.3	3649.1	55.7	-8.5	-963.6	204830.6	500303.2
3700	2.5	350.9	58.8	3699	58.1	-9.3	-913.7	204833.1	500302.4
3750	2.4	329.5	61	3749	60.1	-10	-863.8	204835.1	500301.7
3800	2.5	333.5	63.2	3798.9	62.3	-10.5	-813.8	204837.3	500301.2
3850	2.7	339.9	65.3	3848.9	64.3	-11.3	-763.8	204839.3	500300.4
3900	2.4	332.5	67.4	3898.8	66.4	-11.8	-713.9	204841.4	500299.9
3950	2.6	339.7	69.4	3948.8	68.3	-12.5	-663.9	204843.2	500299.2
4000	2.2	330.8	71.4	3998.7	70.2	-13	-614	204845.1	500298.7
4050	2.6	344.7	73.2	4048.7	71.9	-13.8	-564	204846.9	500297.9
4100	2.4	337.1	75.1	4098.7	73.7	-14.4	-514.1	204848.7	500297.3
4150	2.7	345	77	4148.6	75.5	-15	-464.1	204850.5	500296.7
4200	2	331	78.7	4198.6	77.2	-15.5	-414.1	204852.1	500296.2
4250	2	347.7	80.4	4248.6	78.8	-16	-364.2	204853.7	500295.7
4300	1.7	334.2	82	4298.5	80.3	-16.5	-314.2	204855.2	500295.2
4350	2	347.8	83.8	4348.5	82.1	-17	-264.2	204857	500294.7
4400	1.6	332.2	85.4	4398.5	83.6	-17.6	-214.2	204858.5	500294.1
4450	2.2	334.2	87	4448.4	85.1	-18.1	-164.3	204860	500293.6
4500	1.5	327	88.6	4498.4	86.7	-18.6	-114.3	204861.6	500293.2
4550	2.2	348	90.1	4548.4	88.1	-19	-64.3	204863	500292.7
4600	1.6	327.6	91.4	4598.4	89.3	-19.2	-14.3	204864.3	500292.5
4650	1.1	341.6	92.9	4648.3	90.8	-19.5	35.6	204865.7	500292.2
4700	1.6	345.5	94.1	4698.3	91.9	-20.1	85.6	204866.9	500291.7
4750	1.4	347.9	95.2	4748.3	93	-20.6	135.6	204867.9	500291.1
4800	1.2	335.7	96.4	4798.3	94.1	-21.2	185.6	204869	500290.5
4850	1.4	341.6	97.5	4848.3	94.9	-22	235.6	204869.9	500289.7
4900	1.1	315.6	98.7	4898.3	96	-22.7	285.6	204871	500289
4936.6	1.6	319.3	99.6	4934.8	96.9	-23.3	322.1	204871.8	500288.4
Closure -		Zero	Coord.:	99.6 @		346.5			
	Mine	Coord:540(	@	1.2					

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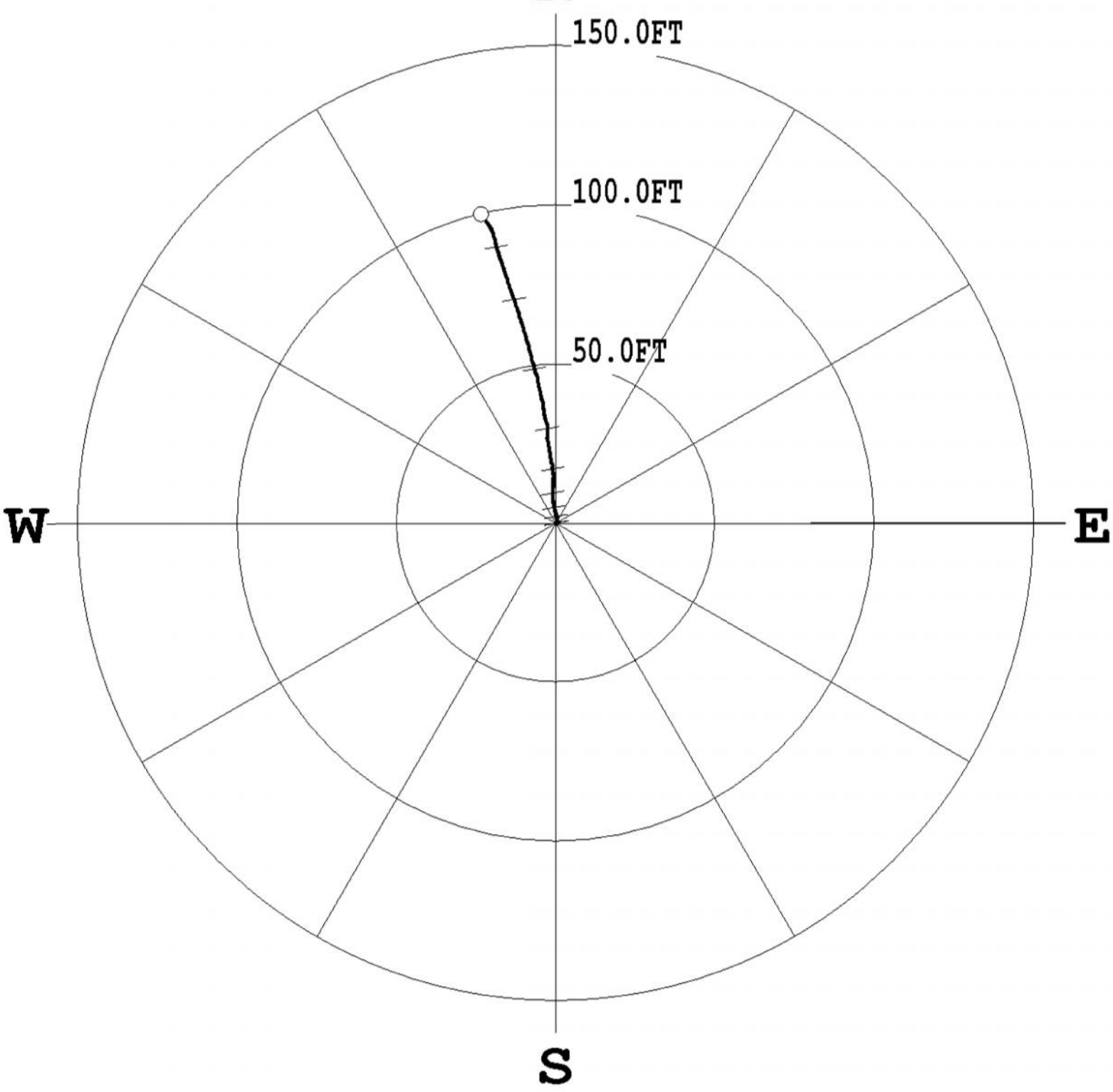
PLAN VIEW
COMPU-LOG DEVIATION

CLIENT: MAGNUM NGLS
LOCATION: UNDESIGNATED
HOLE ID: CAVERN WELL CW-6
DATE OF LOG: 01/23/14
PROBE: 9097 4447

MAG DECL: 12.6

SCALE: 50 FT/IN
TRUE DEPTH: 4934.85 FT
AZIMUTH: 346.5
DISTANCE: 99.6 FT
+ = 500 FT INCR
○ = BOTTOM OF HOLE



RECEIVED: May. 14, 2014

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

5.LEASE DESIGNATION AND SERIAL NUMBER: 51573-OBA

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7.UNIT or CA AGREEMENT NAME:

1. TYPE OF WELL
Gas Storage Well

8. WELL NAME and NUMBER: CW-6

2. NAME OF OPERATOR:
MAGNUM NGLS SOLUTION MINING LLC

9. API NUMBER: 43027500030000

3. ADDRESS OF OPERATOR:
3165 East Millrock Drive Suite 330 , Holladay, UT, 84121

PHONE NUMBER: 801 993-7001 Ext

9. FIELD and POOL or WILDCAT: WILDCAT

4. LOCATION OF WELL
FOOTAGES AT SURFACE:
0442 FNL 0284 FWL
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:
Qtr/Qtr: NWNW Section: 26 Township: 15.0S Range: 07.0W Meridian: S

COUNTY: MILLARD

STATE: UTAH

11.
CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
✓ NOTICE OF INTENT Approximate date work will start: 10/29/2014	☐ ACIDIZE	☐ ALTER CASING	☐ CASING REPAIR
	☐ CHANGE TO PREVIOUS PLANS	☐ CHANGE TUBING	☐ CHANGE WELL NAME
	☐ CHANGE WELL STATUS	☐ COMMINGLE PRODUCING FORMATIONS	☐ CONVERT WELL TYPE
☐ SUBSEQUENT REPORT Date of Work Completion:	☐ DEEPEN	☐ FRACTURE TREAT	☐ NEW CONSTRUCTION
	☐ OPERATOR CHANGE	☐ PLUG AND ABANDON	☐ PLUG BACK
☐ SPUD REPORT Date of Spud:	☐ PRODUCTION START OR RESUME	✓ RECLAMATION OF WELL SITE	☐ RECOMPLETE DIFFERENT FORMATION
	☐ REPERFORATE CURRENT FORMATION	☐ SIDETRACK TO REPAIR WELL	☐ TEMPORARY ABANDON
	☐ TUBING REPAIR	☐ VENT OR FLARE	☐ WATER DISPOSAL
☐ DRILLING REPORT Report Date:	☐ WATER SHUTOFF	☐ SI TA STATUS EXTENSION	☐ APD EXTENSION
	☐ WILDCAT WELL DETERMINATION	☐ OTHER	OTHER:

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Magnum is requesting to postpone final reclamation of the CW-6 mud pit. The reason for the requested postponement is to allow for the use of the pit during additional solution mining of storage space in CW-6 within the next 12 months. At this time, Magnum proposes to partially close the pit. The barbed wire fence will be re-installed around the open portion of the pit. Then once solution mining is completed, Magnum will pump any remaining brine from the pit, dry the remaining solids, and reclaim the pit per DOGM and SITLA standards.

Approved by the
Utah Division of
Oil, Gas and Mining
October 31, 2014
Date:
By:

NAME (PLEASE PRINT)	PHONE NUMBER	TITLE
Tiffany A. James	801 993-7001	Vice President Project Development

SIGNATURE	DATE
N/A	10/29/2014

RECEIVED: Oct. 29, 2014

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

5.LEASE DESIGNATION AND SERIAL NUMBER: 51573-OBA

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7.UNIT or CA AGREEMENT NAME:

1. TYPE OF WELL
Gas Storage Well

8. WELL NAME and NUMBER: CW-6

2. NAME OF OPERATOR:
MAGNUM NGLS SOLUTION MINING LLC

9. API NUMBER: 43027500030000

3. ADDRESS OF OPERATOR:
3165 East Millrock Drive Suite 330 , Holladay, UT, 84121

PHONE NUMBER: 801 993-7001 Ext

9. FIELD and POOL or WILDCAT: WILDCAT

4. LOCATION OF WELL
FOOTAGES AT SURFACE:
0442 FNL 0284 FWL
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:
Qtr/Qtr: NWNW Section: 26 Township: 15.0S Range: 07.0W Meridian: S

COUNTY: MILLARD

STATE: UTAH

11.
CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
☐ NOTICE OF INTENT Approximate date work will start:	☐ ACIDIZE	☐ ALTER CASING	☐ CASING REPAIR
✓ SUBSEQUENT REPORT Date of Work Completion: 1/31/2014	☐ CHANGE TO PREVIOUS PLANS	☐ CHANGE TUBING	☐ CHANGE WELL NAME
☐ SPUD REPORT Date of Spud:	☐ CHANGE WELL STATUS	☐ COMMINGLE PRODUCING FORMATIONS	☐ CONVERT WELL TYPE
☐ DRILLING REPORT Report Date:	☐ DEEPEN	☐ FRACTURE TREAT	☐ NEW CONSTRUCTION
	☐ OPERATOR CHANGE	☐ PLUG AND ABANDON	☐ PLUG BACK
	☐ PRODUCTION START OR RESUME	☐ RECLAMATION OF WELL SITE	☐ RECOMPLETE DIFFERENT FORMATION
	☐ REPERFORATE CURRENT FORMATION	☐ SIDETRACK TO REPAIR WELL	☐ TEMPORARY ABANDON
	☐ TUBING REPAIR	☐ VENT OR FLARE	☐ WATER DISPOSAL
	☐ WATER SHUTOFF	☐ SI TA STATUS EXTENSION	☐ APD EXTENSION
	☐ WILDCAT WELL DETERMINATION	✓ OTHER	OTHER: CW-6 As-Built Casing Desigr

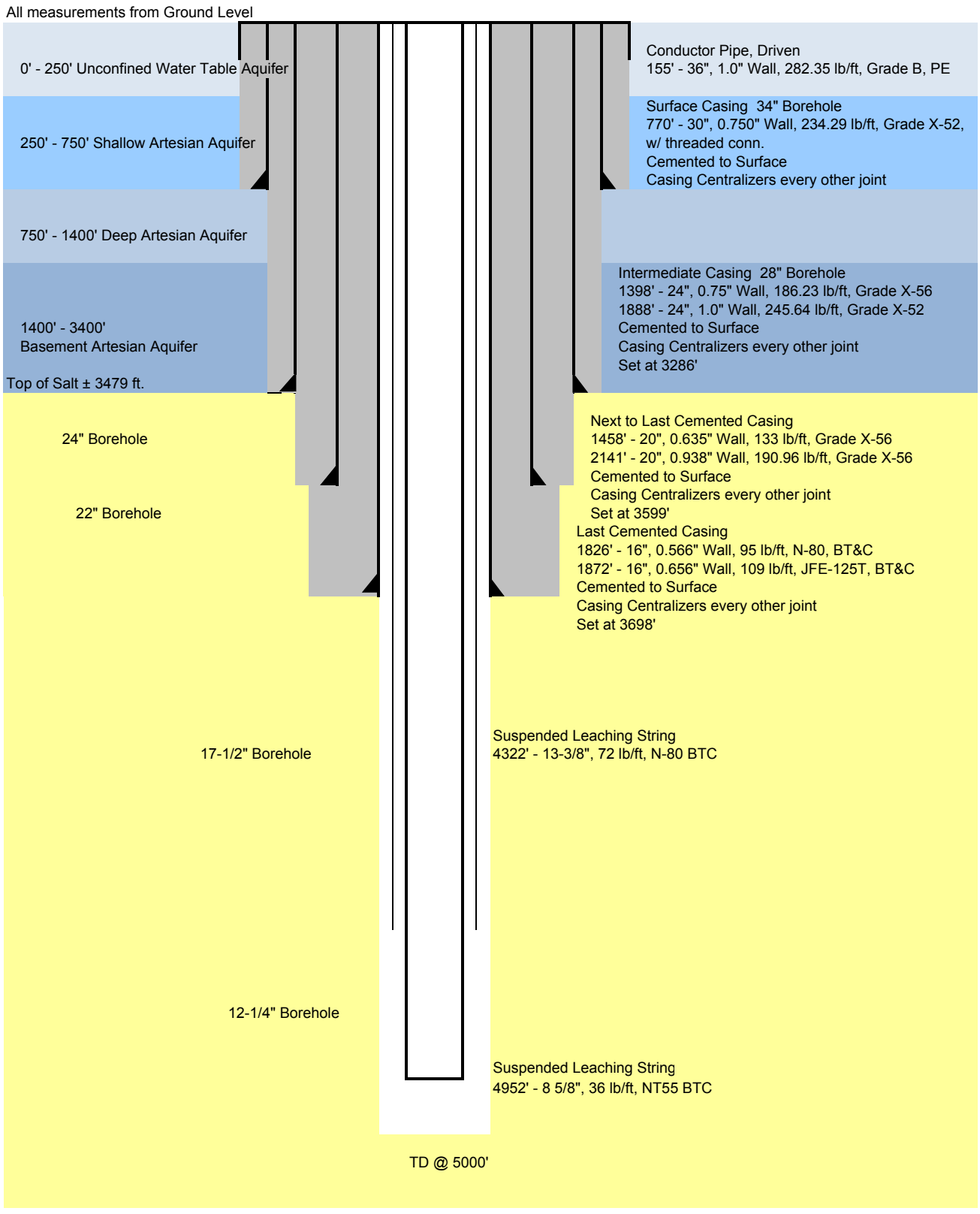
12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Magnum NGLS Cavern Well #CW-6 As-Built Casing Design Dated January 31, 2014 API No. 43027500030000 APD No. 4849

Accepted by the Utah Division of Oil, Gas and Mining
FOR RECORD ONLY
February 04, 2015

NAME (PLEASE PRINT)	PHONE NUMBER	TITLE
Tiffany A. James	801 993-7001	Vice President Project Development
SIGNATURE		**DATE**
N/A		2/2/2015

RECEIVED: Feb. 02, 2015



Natural Gas Liquids	Magnum

Storage Well CW-6 Casing As-Built

DRAWN: T. Eyermann / G. Lambeth	DATE: 01/31/14	SCALE: NONE	

RECEIVED: Feb. 02, 2015

Division of Oil, Gas and Mining
Operator Change/Name Change Worksheet-for State use only

Effective Date: 2/17/2015

FORMER OPERATOR:	NEW OPERATOR:
Magnum NGLs Solutions Mining, LLC N3995 6965 Union Park Avenue, Suite 27 Midval, UT 84047 801-255-9632	NGL Supply Terminal Solution Mining, LLC N4245 6965 Union Park Avenue, Suite 27 Midval, UT 84047 801-255-9632
CA Number(s):	Unit(s):

WELL INFORMATION:

Well Name	Sec	TWN	RNG	API	Entity	Mineral	Surface	Type	Status
CW-6	26	150S	070W	4302750003	19132	State	State	GS	A
CW-7	23	150S	070W	4302750004	19669	State	State	GS	A
CW-8	23	150S	070W	4302750005		State	State	GS	DRL
CW-9	26	150S	070W	4302750006		State	State	GS	DRL
CW-5	23	150S	070W	4302750002	19046	State	State	GS	I

OPERATOR CHANGES DOCUMENTATION:

1. Sundry or legal documentation was received from the **FORMER** operator on: 4/20/2015
2. Sundry or legal documentation was received from the **NEW** operator on: 4/20/2015
3. New operator Division of Corporations Business Number: **8615504-0160**

REVIEW:

1. Surface Agreement Sundry from **NEW** operator on Fee Surface wells received on: 4/20/2015
2. Receipt of Acceptance of Drilling Procedures for APD on: 4/20/2015
3. Reports current for Production/Disposition & Sundries: 7/2/2015
4. OPS/SI/TA well(s) reviewed for full cost bonding: 7/2/2015
5. UIC5 on all disposal/injection/storage well(s) approved on: 4/28/2015
6. Surface Facility(s) included in operator change: N/A
7. Inspections of PA state/fee well sites complete on (only upon operators request): N/A

NEW OPERATOR BOND VERIFICATION:

1. Federal well(s) covered by Bond Number: N/A
2. Indian well(s) covered by Bond Number: N/A
3. State/fee well(s) covered by Bond Number(s): B009096a

DATA ENTRY:

1. Well(s) update in the **OGIS** on: 7/2/2015
2. Entity Number(s) updated in **OGIS** on: 7/2/2015
3. Unit(s) operator number update in **OGIS** on: N/A
4. Surface Facilities update in **OGIS** on: N/A
5. State/Fee well(s) attached to bond(s) in **RBDMS** on: 7/2/2015
6. Surface Facilities update in **RBDMS** on: N/A

LEASE INTEREST OWNER NOTIFICATION:

1. The **NEW** operator of the Fee (Mineral) wells has been contacted and informed by a letter from the Division of their responsibility to notify all interest owners of this change on: N/A

COMMENTS:

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL. GAS AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells. significantly deepen existing wells below current bottom-hole depth. reenter plugged wells. or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

5. LEASE DESIGNATION AND SERIAL NUMBER: ML-51573.A-OBA

6. IF INDIAN. ALLOTTEE OR TRIBE NAME:

7. UNIT or CA AGREEMENT NAME:

1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ OTHER Gas Storage Wells

8. WELL NAME and NUMBER: CW-5

2. NAME OF OPERATOR: NGL Supply Terminal Solution Mining. LLC

9. API NUMBER: 4302750002

3. ADDRESS OF OPERATOR: 6965 Union Park Ave. Ste 27 CITY Midvale STATE UT ZIP 84047

PHONE NUMBER: (801) 255-9632

10. FIELD AND POOL. OR WILDCAT: Undesignated

4. LOCATION OF WELL

FOOTAGES AT SURFACE: 0147 FSL 0167 FWL

COUNTY: Millard County

QTR/QTR. SECTION. TOWNSHIP. RANGE. MERIDIAN: SWSW 23 15S 7W S

STATE: UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE. REPORT. OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
☐ NOTICE OF INTENT (Submit in Duplicate)	☐ ACIDIZE	☐ DEEPEN	☐ REPERFORATE CURRENT FORMATION
Approximate date work will start: _____	☐ ALTER CASING	☐ FRACTURE TREAT	☐ SIDETRACK TO REPAIR WELL
	☐ CASING REPAIR	☐ NEW CONSTRUCTION	☐ TEMPORARILY ABANDON
	☐ CHANGE TO PREVIOUS PLANS	☑ OPERATOR CHANGE	☐ TUBING REPAIR
	☐ CHANGE TUBING	☐ PLUG AND ABANDON	☐ VENT OR FLARE
☑ SUBSEQUENT REPORT (Submit Original Form Only)	☐ CHANGE WELL NAME	☐ PLUG BACK	☐ WATER DISPOSAL
Date of work completion: 2/17/2015	☐ CHANGE WELL STATUS	☐ PRODUCTION (START/RESUME)	☐ WATER SHUT-OFF
	☐ COMMINGLE PRODUCING FORMATIONS	☐ RECLAMATION OF WELL SITE	☑ OTHER: Operator name change
	☐ CONVERT WELL TYPE	☐ RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates. depths. volumes. etc.

Change of Operator name from Magnum NGLs Solution Mining. LLC to NGL Supply Terminal Solution Mining. LLC effective 2/17/2015

Operator current name:
Magnum NGLs Solution Mining. LLC. 3165 E Millrock Drive. Suite 330. Holladay. Utah 84121 801-993-7001

Operator new name and address:
NGL Supply Terminal Solution Mining. LLC. 6965 Union Park Avenue. Suite 270 Midvale. Utah 84047 801-255-9632

Wells are under State bond number B009096.

Existing lease. Memorandum of Natural Gas Liguid Storage Lease #ML-51573.A-OBA remains in effect.

See attached list of additional included wells (CW-5. CW-6. CW-7. CW-8. CW-9)

NAME (PLEASE PRINT) Adam Richins TITLE Safety. Compliance & Regulatory Manager

SIGNATURE Adam Richins DATE 4/20/2015

(This space for State use only)

APPROVED

JUL 02 2015

DIV. OIL GAS & MINING

BY: Rachel Medina

(5/2000) (See Instructions on Reverse Side)

List of Cavern Wells (Magnum NGLs/Sawt

Well Name	Section	Township	Range	API Number	Entity Number	Mineral Lease Type	Well Type
CW-5	23	15 S	7 W	43-027-50002	N/A	State	Gas Storage Well
CW-6	26	15 S	7 W	43-027-50003	N/A	State	Gas Storage Well
CW-7	23	15 S	7 W	43-027-50004	N/A	State	Gas Storage Well
CW-8	23	15 S	7 W	43-027-50005	N/A	State	Gas Storage Well
CW-9	26	15 S	7 W	43-027-50006	N/A	State	Gas Storage Well

ooth)
Well Status
Inactive
Active
Active
Spudded (Drilling commenced: Not yet completed)
New Permit (Not yet approved or drilled)

Delaware

The First State

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF "MAGNUM NGLS, LLC", CHANGING ITS NAME FROM "MAGNUM NGLS, LLC" TO "SAWTOOTH NGL CAVERNS, LLC", FILED IN THIS OFFICE ON THE EIGHTEENTH DAY OF MARCH, A.D. 2015, AT 12:21 O'CLOCK P.M.

Jeffrey W. Bullock, Secretary of State

5037140 8100

AUTHENTICATION: 2211843

150374000

DATE: 03-18-15

You may verify this certificate online at corp.delaware.gov/authver.shtml

State of Delaware
Secretary of State
Division of Corporations
Delivered 12:40 PM 03/18/2015
FILED 12:21 PM 03/18/2015
SRV 150374000 - 5037140 FILE

STATE OF DELAWARE
CERTIFICATE OF AMENDMENT

1. Name of Limited Liability Company: MAGNUM NGLS, LLC

2. The Certificate of Formation of the limited liability company is hereby amended as follows:

1. The name of the Limited Liability Company is Sawtooth NGL Caverns, LLC.

IN WITNESS WHEREOF, the undersigned have executed this Certificate on the 17th day of March, A.D. 2015.

By: _____
Authorized Person(s)

Name: William G. Laughlin
Print or Type

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL. GAS AND MINING

Request to Transfer Application or Permit to Drill

(This form should accompany a Sundry Notice. Form 9. requesting APD transfer)

Well name:	CW-5
API number:	430275002
Location:	Qtr-Qtr: SWSW Section: 23 Township: 15 S Range: 7 W
Company that filed original application:	Magnum NGLs Solution Mining. LLC
Date original permit was issued:	05/02/2013
Company that permit was issued to:	Magnum NGLs Solution Mining. LLC

Check one	Desired Action:
	Transfer pending (unapproved) Application for Permit to Drill to new operator
	The undersigned as owner with legal rights to drill on the property. hereby verifies that the information as submitted in the pending Application for Permit to Drill. remains valid and does not require revision. The new owner of the application accepts and agrees to the information and procedures as stated in the application.
✔	**Transfer approved Application for Permit to Drill to new operator**
	The undersigned as owner with legal rights to drill on the property as permitted. hereby verifies that the information as submitted in the previously approved application to drill. remains valid and does not require revision.

Following is a checklist of some items related to the application, which should be verified.	Yes	No
If located on private land. has the ownership changed?		✔
If so. has the surface agreement been updated?		✔
Have any wells been drilled in the vicinity of the proposed well which would affect the spacing or siting requirements for this location?		✔
Have there been any unit or other agreements put in place that could affect the permitting or operation of this proposed well?		✔
Have there been any changes to the access route including ownership or right-of-way. which could affect the proposed location?		✔
Has the approved source of water for drilling changed?		✔
Have there been any physical changes to the surface location or access route which will require a change in plans from what was discussed at the onsite evaluation?		✔
Is bonding still in place. which covers this proposed well? Bond No. B009096	✔	

Any desired or necessary changes to either a pending or approved Application for Permit to Drill that is being transferred. should be filed on a Sundry Notice. Form 9. or amended Application for Permit to Drill. Form 3. as appropriate. with necessary supporting information as required.

Name (please print) Adam Richins Title Safety. Compliance and Regulatory Manager

Signature Adam Richins Date 04/20/2015

Representing (company name) NGL Supply Terminal Solution Mining. LLC

The person signing this form must have legal authority to represent the company or individual(s) to be listed as the new operator on the Application for Permit to Drill.

(3/2004)

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL. GAS AND MINING

UIC FORM 5

TRANSFER OF AUTHORITY TO INJECT

Well Name and Number	API Number
CW-5	4302750002
Location of Well	Field or Unit Name
Footage : 147 S 167 W County : Millard County	
QQ. Section. Township. Range: SWSW 23 15S 7W State : UTAH	Lease Designation and Number: State ML-51573.A-OBA

EFFECTIVE DATE OF TRANSFER: 2/17/2015

CURRENT OPERATOR

Company: Magnum NGLs Solution Mining. LLC
Address: 3165 E Millrock Drive Suite 330
city Holladay state UT zip 84121
Phone: (801) 993-7001
Name: Adam Richins
Signature: Adam Richins
Title: Safety. Compliance & Regulatory Manager
Date: 4-20-15
Comments: Entity is the same. Name of operator is changing.

NEW OPERATOR

Company: NGL Supply Terminal Solution Mining. LLC
Address: 6965 Union Park Avenue Suite 270
city Midvale state UT zip 84047
Phone: (801) 255-9632
Name: Adam Richins
Signature: Adam Richins
Title: Safety. Compliance & Regulatory Manager
Date: 4-20-15
Comments: Magnum NGLs Solution Mining. LLC is changing name to NGL Supply Terminal Solution Mining. LLC

(This space for State use only)
Transfer approved by: [signature]
Title: Geologist
Approval Date: 4/28/15
Comments:

RECEIVED
APR 2014
Div. of Oil, Gas & Mining

(5/2000)

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL. GAS AND MINING

Request to Transfer Application or Permit to Drill

(This form should accompany a Sundry Notice. Form 9. requesting APD transfer)

Well name:	CW-6
API number:	430275003
Location:	Qtr-Qtr: NWNW Section: 26 Township 15 S Range: 7 W
Company that filed original application:	Magnum NGLs Solution Mining. LLC
Date original permit was issued:	05/02/2013
Company that permit was issued to:	Magnum NGLs Solution Mining. LLC

Check one	Desired Action:
	Transfer pending (unapproved) Application for Permit to Drill to new operator
	The undersigned as owner with legal rights to drill on the property. hereby verifies that the information as submitted in the pending Application for Permit to Drill. remains valid and does not require revision. The new owner of the application accepts and agrees to the information and procedures as stated in the application.
✔	**Transfer approved Application for Permit to Drill to new operator**
	The undersigned as owner with legal rights to drill on the property as permitted. hereby verifies that the information as submitted in the previously approved application to drill. remains valid and does not require revision.

Following is a checklist of some items related to the application, which should be verified.	Yes	No
If located on private land. has the ownership changed?		✔
If so. has the surface agreement been updated?		✔
Have any wells been drilled in the vicinity of the proposed well which would affect the spacing or siting requirements for this location?		✔
Have there been any unit or other agreements put in place that could affect the permitting or operation of this proposed well?		✔
Have there been any changes to the access route including ownership or right-of-way. which could affect the proposed location?		✔
Has the approved source of water for drilling changed?		✔
Have there been any physical changes to the surface location or access route which will require a change in plans from what was discussed at the onsite evaluation?		✔
Is bonding still in place. which covers this proposed well? Bond No. B009096	✔	

Any desired or necessary changes to either a pending or approved Application for Permit to Drill that is being transferred. should be filed on a Sundry Notice. Form 9. or amended Application for Permit to Drill. Form 3. as appropriate. with necessary supporting information as required.

Name (please print) Adam Richins Title Safety. Compliance and Regulatory Manager

Signature Adam Richins Date 04/20/2015

Representing (company name) NGL Supply Terminal Solution Mining. LLC

The person signing this form must have legal authority to represent the company or individual(s) to be listed as the new operator on the Application for Permit to Drill.

(3/2004)

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL. GAS AND MINING

UIC FORM 5

TRANSFER OF AUTHORITY TO INJECT

Well Name and Number	API Number
CW-6	4302750003
Location of Well	Field or Unit Name
Footage : 442 N 284 W County : Millard County	
QQ. Section. Township. Range: NWNW 26 15S 7W State : UTAH	Lease Designation and Number: State ML-51573.A-OBA

EFFECTIVE DATE OF TRANSFER: 2/17/2015

CURRENT OPERATOR

Company: Magnum NGLs Solution Mining. LLC
Address: 3165 E Millrock Drive Suite 330
city Holladay state UT zip 84121
Phone: (801) 993-7001
Comments: Entity is the same. Name of operator is changing.

Name: Adam Richins
Signature: Adam Richins
Title: Safety. Compliance & Regulatory Manager
Date: 4-20-15

NEW OPERATOR

Company: NGL Supply Terminal Solution Mining. LLC
Address: 6965 Union Park Avenue Suite 270
city Midvale state UT zip 84047
Phone: (801) 255-9632
Comments: Magnum NGLs Solution Mining. LLC is changing name to NGL Supply Terminal Solution Mining. LLC

Name: Adam Richins
Signature: Adam Richins
Title: Safety. Compliance & Regulatory Manager
Date: 4-20-15

(This space for State use only)

Transfer approved by: EPA
Title:

Approval Date:

Comments:

RECEIVED
APR 2014
Div. of Oil, Gas & Mining

(5/2000)

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL. GAS AND MINING

Request to Transfer Application or Permit to Drill

(This form should accompany a Sundry Notice. Form 9. requesting APD transfer)

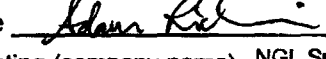
Well name:	CW-7
API number:	430275004
Location:	Qtr-Qtr: SWSW Section: 23 Township. 15 S Range: 7 W
Company that filed original application:	Magnum NGLs Solution Mining. LLC
Date original permit was issued:	02/11/2014
Company that permit was issued to:	Magnum NGLs Solution Mining. LLC

Check one	Desired Action:
	Transfer pending (unapproved) Application for Permit to Drill to new operator
	The undersigned as owner with legal rights to drill on the property. hereby verifies that the information as submitted in the pending Application for Permit to Drill. remains valid and does not require revision. The new owner of the application accepts and agrees to the information and procedures as stated in the application.
✔	**Transfer approved Application for Permit to Drill to new operator**
	The undersigned as owner with legal rights to drill on the property as permitted. hereby verifies that the information as submitted in the previously approved application to drill. remains valid and does not require revision.

Following is a checklist of some items related to the application, which should be verified.	Yes	No
If located on private land. has the ownership changed?		✔
If so. has the surface agreement been updated?		✔
Have any wells been drilled in the vicinity of the proposed well which would affect the spacing or siting requirements for this location?		✔
Have there been any unit or other agreements put in place that could affect the permitting or operation of this proposed well?		✔
Have there been any changes to the access route including ownership or right-of-way. which could affect the proposed location?		✔
Has the approved source of water for drilling changed?		✔
Have there been any physical changes to the surface location or access route which will require a change in plans from what was discussed at the onsite evaluation?		✔
Is bonding still in place. which covers this proposed well? Bond No. B009096	✔	

Any desired or necessary changes to either a pending or approved Application for Permit to Drill that is being transferred. should be filed on a Sundry Notice. Form 9. or amended Application for Permit to Drill. Form 3. as appropriate. with necessary supporting information as required.

Name (please print) Adam Richins Title Safety. Compliance and Regulatory Manager

Signature  Date 04/20/2015

Representing (company name) NGL Supply Terminal Solution Mining. LLC

The person signing this form must have legal authority to represent the company or individual(s) to be listed as the new operator on the Application for Permit to Drill.

(3/2004)

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

UIC FORM 5

TRANSFER OF AUTHORITY TO INJECT

Well Name and Number	API Number
CW-7	4302750004
Location of Well	Field or Unit Name
Footage : 852 S 91 W County : Millard County	
QQ. Section. Township. Range: SWSW 23 15S 7W State : UTAH	Lease Designation and Number: State ML-51573.A-OBA

EFFECTIVE DATE OF TRANSFER: 2/17/2015

CURRENT OPERATOR

Company: Magnum NGLs Solution Mining. LLC
Address: 3165 E Millrock Drive Suite 330
city Holladay state UT zip 84121
Phone: (801) 993-7001
Name: Adam Richins
Signature: Adam Richins
Title: Safety. Compliance & Regulatory Manager
Date: 4-20-15
Comments: Entity is the same. Name of operator is changing.

NEW OPERATOR

Company: NGL Supply Terminal Solution Mining. LLC
Address: 6965 Union Park Avenue Suite 270
city Midvale state UT zip 84047
Phone: (801) 255-9632
Name: Adam Richins
Signature: Adam Richins
Title: Safety. Compliance & Regulatory Manager
Date: 4-20-15
Comments: Magnum NGLs Solution Mining. LLC is changing name to NGL Supply Terminal Solution Mining. LLC

(This space for State use only)

Transfer approved by: EPA
Title:
Approval Date:

Comments:

RECEIVED
APR 2014
Div. of Oil, Gas & Mining

(5/2000)

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL. GAS AND MINING

Request to Transfer Application or Permit to Drill

(This form should accompany a Sundry Notice. Form 9. requesting APD transfer)

Well name:	CW-8
API number:	430275005
Location:	Qtr-Qtr: SWSW Section. 23 Township. 15 S Range: 7 W
Company that filed original application:	Magnum NGLs Solution Mining. LLC
Date original permit was issued:	11/25/2014
Company that permit was issued to:	Magnum NGLs Solution Mining. LLC

Check one	Desired Action:
	Transfer pending (unapproved) Application for Permit to Drill to new operator
	The undersigned as owner with legal rights to drill on the property. hereby verifies that the information as submitted in the pending Application for Permit to Drill. remains valid and does not require revision. The new owner of the application accepts and agrees to the information and procedures as stated in the application.
✔	**Transfer approved Application for Permit to Drill to new operator**
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Have there been any unit or other agreements put in place that could affect the permitting or operation of this proposed well?		✔
Have there been any changes to the access route including ownership or right-of-way. which could affect the proposed location?		✔
Has the approved source of water for drilling changed?		✔
Have there been any physical changes to the surface location or access route which will require a change in plans from what was discussed at the onsite evaluation?		✔
Is bonding still in place. which covers this proposed well? Bond No. B009096	✔	

Any desired or necessary changes to either a pending or approved Application for Permit to Drill that is being transferred. should be filed on a Sundry Notice. Form 9. or amended Application for Permit to Drill. Form 3. as appropriate. with necessary supporting information as required.

Name (please print) Adam Richins Title Safety. Compliance and Regulatory Manager

Signature Adam Richins Date 04/20/2015

Representing (company name) NGL Supply Terminal Solution Mining. LLC

The person signing this form must have legal authority to represent the company or individual(s) to be listed as the new operator on the Application for Permit to Drill.

(3/2004)

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL. GAS AND MINING

UIC FORM 5

TRANSFER OF AUTHORITY TO INJECT

Well Name and Number	API Number
CW-8	4302750005
Location of Well	Field or Unit Name
Footage : 805 S 548 W County : Millard County	
QQ. Section. Township. Range: SWSW 23 15S 7W State : UTAH	Lease Designation and Number State ML-51573.A-OBA

EFFECTIVE DATE OF TRANSFER: 2/17/2015

CURRENT OPERATOR

Company: Magnum NGLs Solution Mining. LLC
Address: 3165 E Millrock Drive Suite 330
city Holladay state UT zip 84121
Phone: (801) 993-7001
Comments: Entity is the same. Name of operator is changing.

Name: Adam Richins
Signature: Adam Richins
Title: Safety. Compliance & Regulatory Manager
Date: 4-20-15

NEW OPERATOR

Company: NGL Supply Terminal Solution Mining. LLC
Address: 6965 Union Park Avenue Suite 270
city Midvale state UT zip 84047
Phone: (801) 255-9632
Comments: Magnum NGLs Solution Mining. LLC is changing name to NGL Supply Terminal Solution Mining. LLC

Name: Adam Richins
Signature: Adam Richins
Title: Safety. Compliance & Regulatory Manager
Date: 4-20-15

(This space for State use only)

Transfer approved by: EPA
Title:

Approval Date:

Comments:

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APR 2014
Div. of Oil. Gas & Mining

(5/2000)

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

5.LEASE DESIGNATION AND SERIAL NUMBER: 51573-OBA

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7.UNIT or CA AGREEMENT NAME:

1. TYPE OF WELL
Gas Storage Well

8. WELL NAME and NUMBER: CW-6

2. NAME OF OPERATOR:
NGL SUPPLY TERMINAL SOLUTION MINING, LLC

9. API NUMBER: 43027500030000

3. ADDRESS OF OPERATOR:
6965 Union Park Avenue, Suite 270 , Midvale, UT, 84047

PHONE NUMBER: 801 255-9632 Ext

9. FIELD and POOL or WILDCAT: DELTA SALT CAVERN STORAGE

4. LOCATION OF WELL
FOOTAGES AT SURFACE:
0442 FNL 0284 FWL
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:
Qtr/Qtr: NWNW Section: 26 Township: 15.0S Range: 07.0W Meridian: S

COUNTY: MILLARD

STATE: UTAH

11.
CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
✓ NOTICE OF INTENT Approximate date work will start: 9/26/2016	☐ ACIDIZE	☐ ALTER CASING	☐ CASING REPAIR
	☐ CHANGE TO PREVIOUS PLANS	☐ CHANGE TUBING	☐ CHANGE WELL NAME
☐ SUBSEQUENT REPORT Date of Work Completion:	☐ CHANGE WELL STATUS	☐ COMMINGLE PRODUCING FORMATIONS	☐ CONVERT WELL TYPE
	☐ DEEPEN	☐ FRACTURE TREAT	☐ NEW CONSTRUCTION
	☐ OPERATOR CHANGE	☐ PLUG AND ABANDON	☐ PLUG BACK
☐ SPUD REPORT Date of Spud:	☐ PRODUCTION START OR RESUME	☐ RECLAMATION OF WELL SITE	☐ RECOMPLETE DIFFERENT FORMATION
	☐ REPERFORATE CURRENT FORMATION	☐ SIDETRACK TO REPAIR WELL	☐ TEMPORARY ABANDON
	☐ TUBING REPAIR	☐ VENT OR FLARE	☐ WATER DISPOSAL
☐ DRILLING REPORT Report Date:	☐ WATER SHUTOFF	☐ SI TA STATUS EXTENSION	☐ APD EXTENSION
	☐ WILDCAT WELL DETERMINATION	✓ OTHER	OTHER: Drilling Mud Pit Closure

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Closure of Mud Pit from drilling operations. Pit will be emptied of any water, liner will be perforated and/or shredded, and pit will be filled with native soil to previous grade.

Approved by the Utah Division of Oil, Gas and Mining
October 27, 2016
Date:
By:

NAME (PLEASE PRINT)	PHONE NUMBER	TITLE
Adam Richins	801 255-9632	Compliance Manager
SIGNATURE		**DATE**
N/A		9/23/2016

RECEIVED: Sep. 23, 2016